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Ramirez

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(54) **PROJECTION SCREEN WITH GOLD COATED PROJECTION RECEIVING SURFACE**

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B32B 37/24 (2006.01)
(Continued)

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CPC ***G03B 21/60*** (2013.01); ***B05D 5/063*** (2013.01); ***B32B 37/24*** (2013.01); ***G03B 21/567*** (2013.01); *B32B 2037/243* (2013.01)

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USPC 359/443, 449, 459; 427/402, 412, 11, 427/62
See application file for complete search history.

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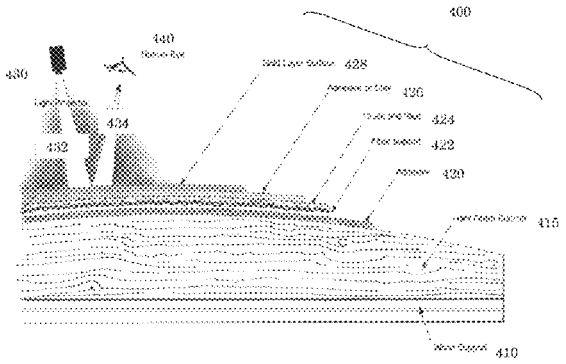
(57) **ABSTRACT**

A projection screen has a gold coated projection receiving surface that reflects light. The projection screen includes a support structure and an adhesive layer on top of the support structure. A fiber support is adhered to the support structure using the adhesive layer. A chalk and adhesive layer is applied on to the fiber support and a clay and adhesive layer is applied on to chalk and adhesive layer. A gold layer is applied to the clay and adhesive layer. A light or a portion thereof passes through each of the multiple ordered layers, including the gold layer, the clay and adhesive layer, the chalk and adhesive layer and reflects back a lustrous, iridescent image that has motion and depth qualities with transmuted color characteristics.

19 Claims, 20 Drawing Sheets



(51) **Int. Cl.**
G03B 21/56 (2006.01)
B05D 5/06 (2006.01)

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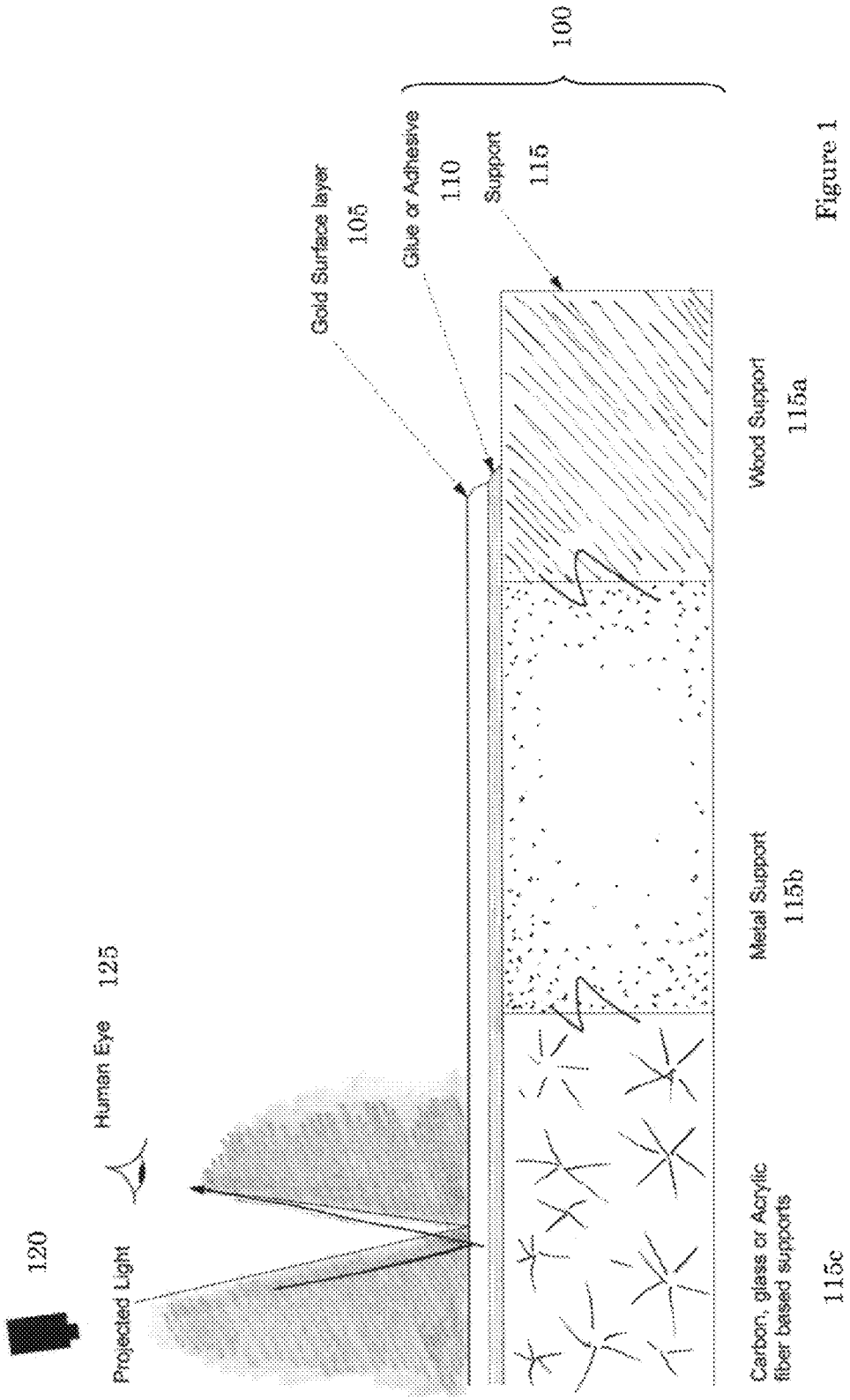

100
Gold Surface layer
105
Glue or Adhesive
110
Support
115
Wood Support
115a
Metal Support
115b
Carbon, glass or Acrylic fiber based supports
115c
Human Eye
125
Projected Light
120

Figure 1

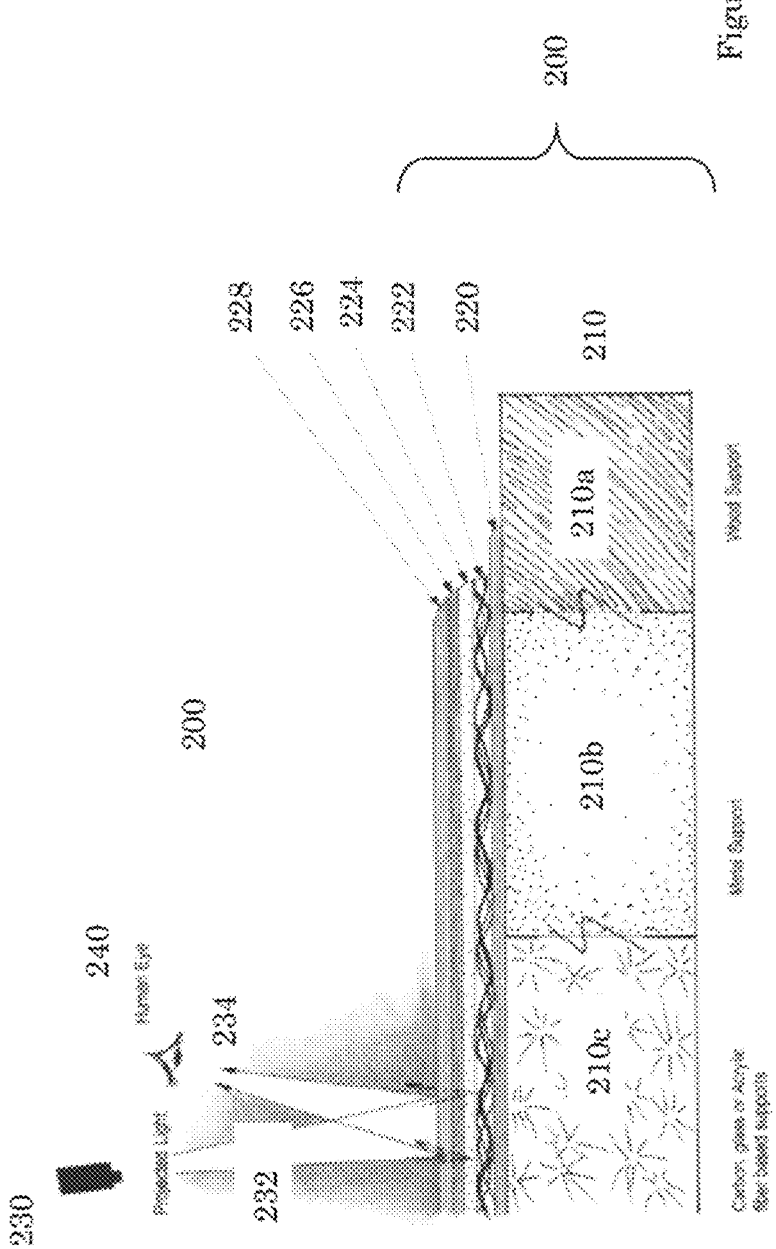


Figure 2

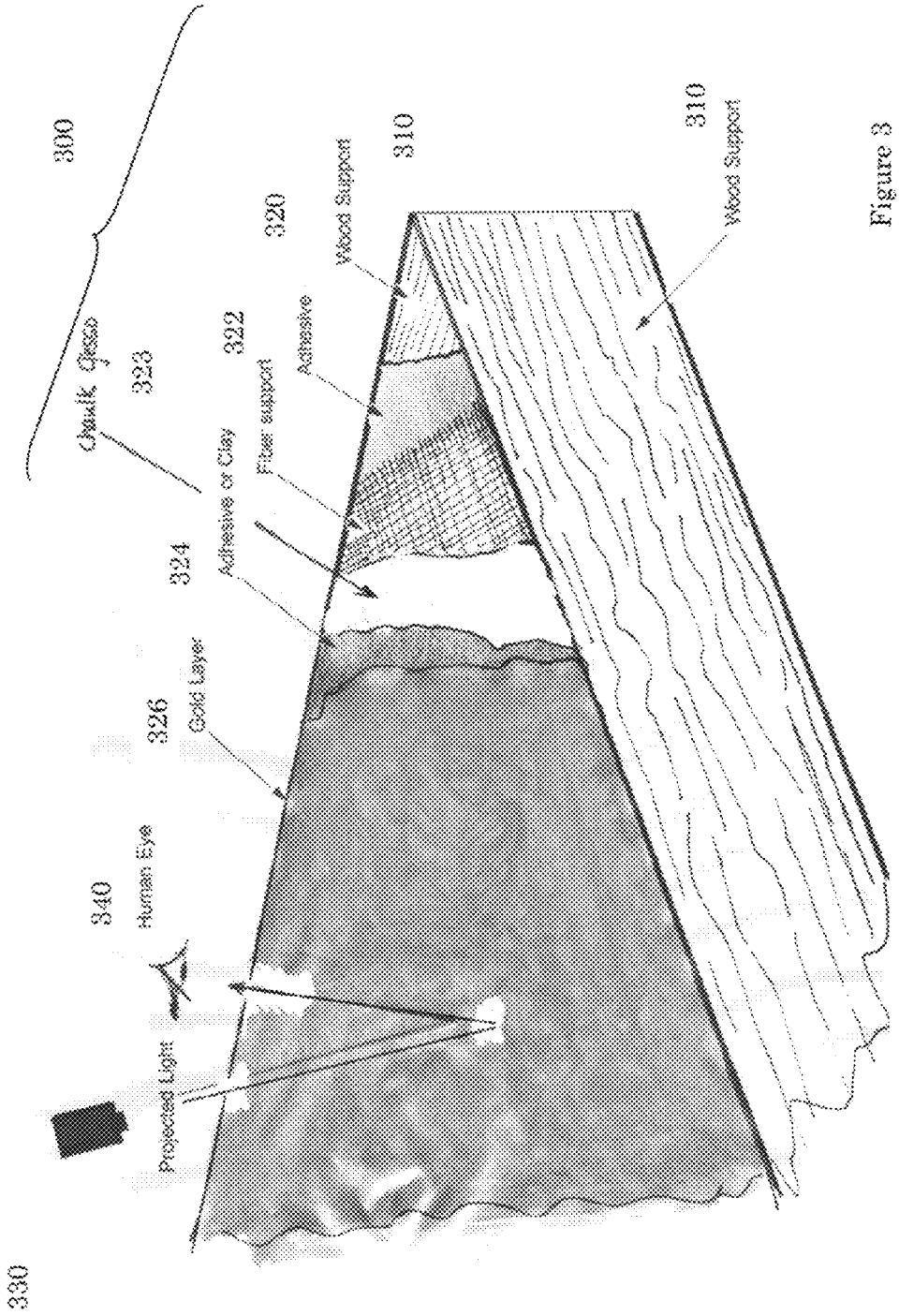

300
Chalk Gesso
323
322
Adhesive or Clay
Fiber support
320
Adhesive
Wood Support
310
310
Wood Support
324
Gold Layer
326
340
Human Eye
Projected Light
330

Figure 3

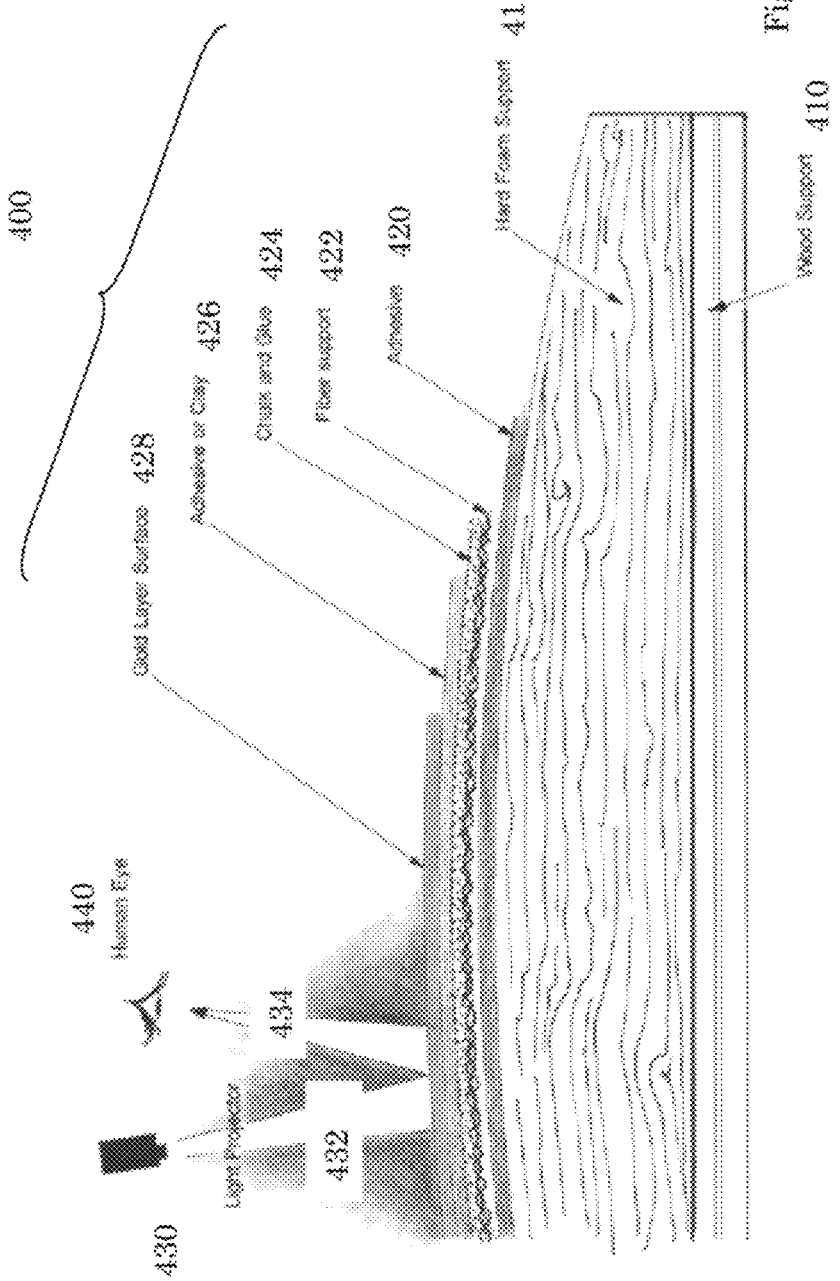

400
Gold Layer Surface
428
Adhesive or Clay
426
Glass and Glue
424
Fiber support
422
Adhesive
420
Hard Foam Support
415
Wood Support
410
440
Human Eye
434
Light Projector
432
430

Figure 4

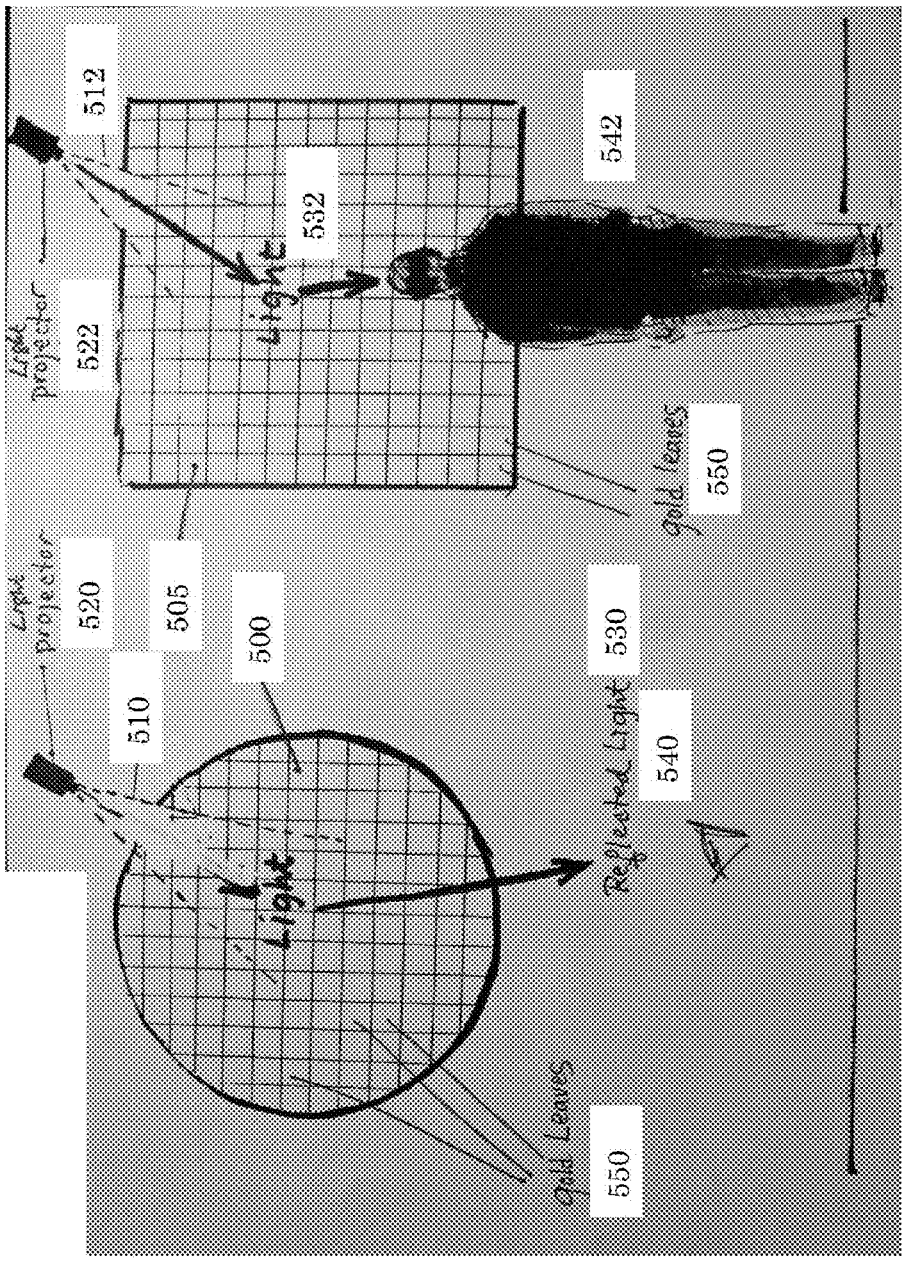
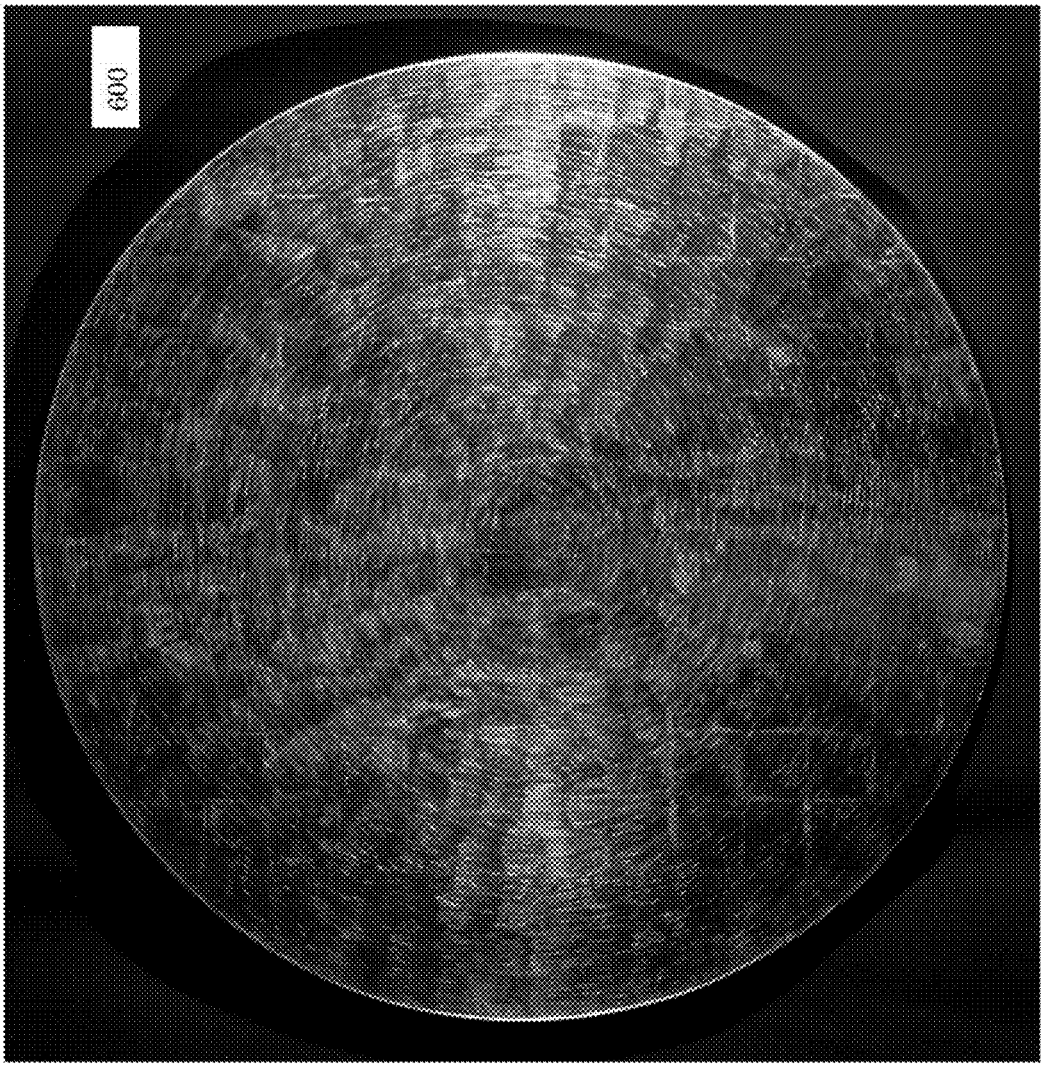
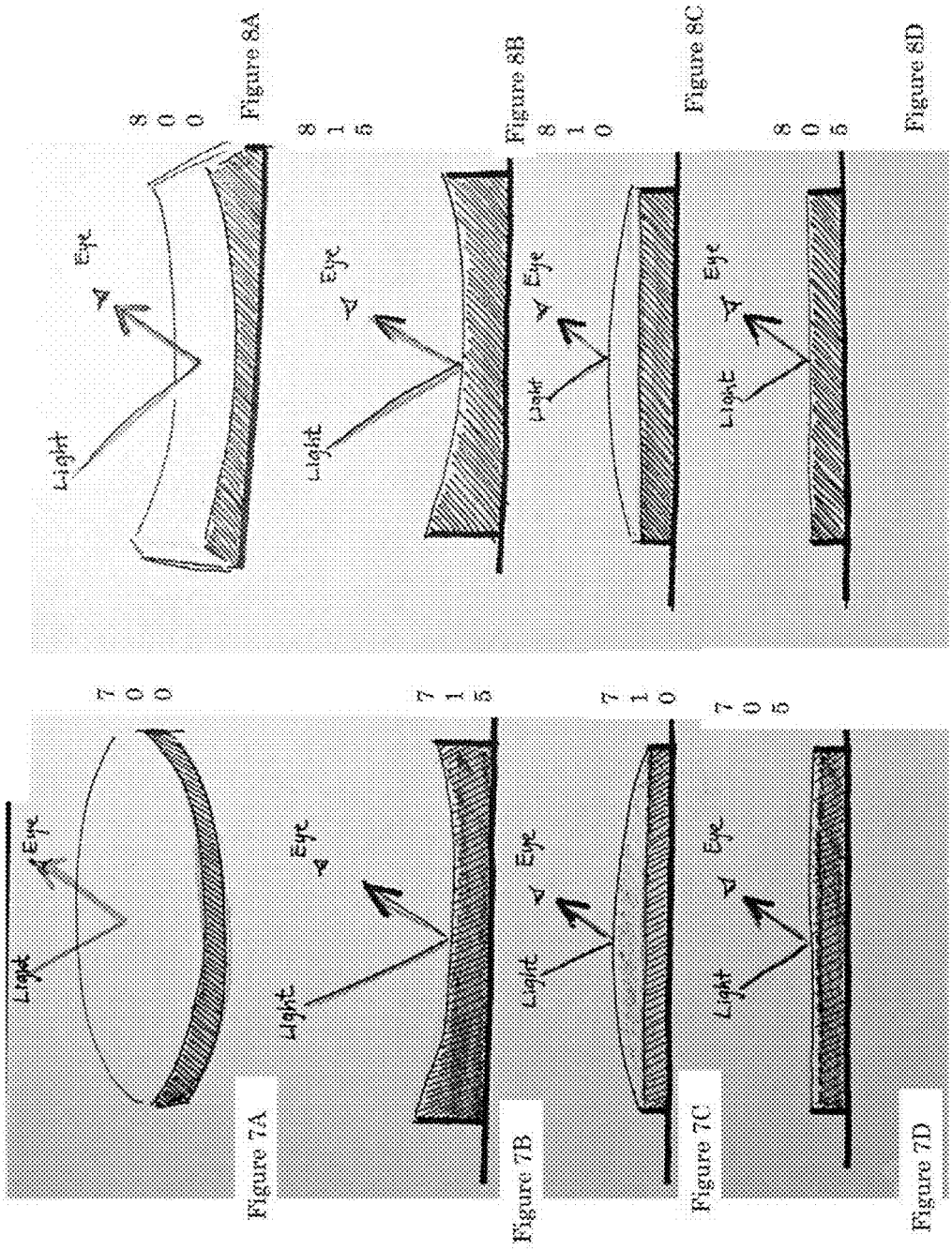


Figure 5B

Figure 5A

Figure 6




Light
Eye
700
Figure 7A
Light
Eye
716
Figure 7B
Light
Eye
710
Figure 7C
Light
Eye
706
Figure 7D
Light
Eye
800
Figure 8A
Light
Eye
816
Figure 8B
Light
Eye
810
Figure 8C
Light
Eye
806
Figure 8D

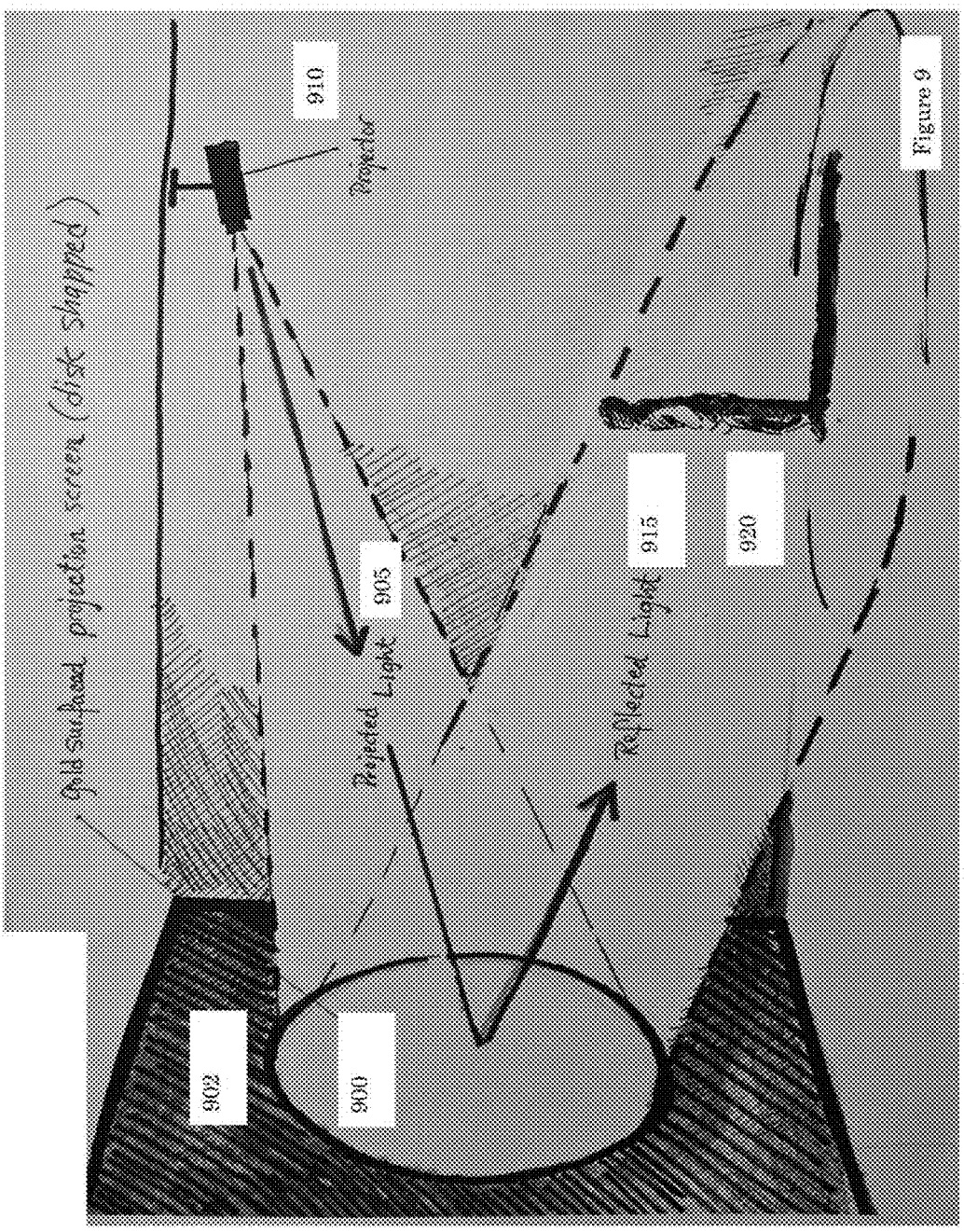

All surface projection screen (disk Shaped)
910
Projector
905
Projected Light
915
920
Reflected Light
900
902

Figure 9

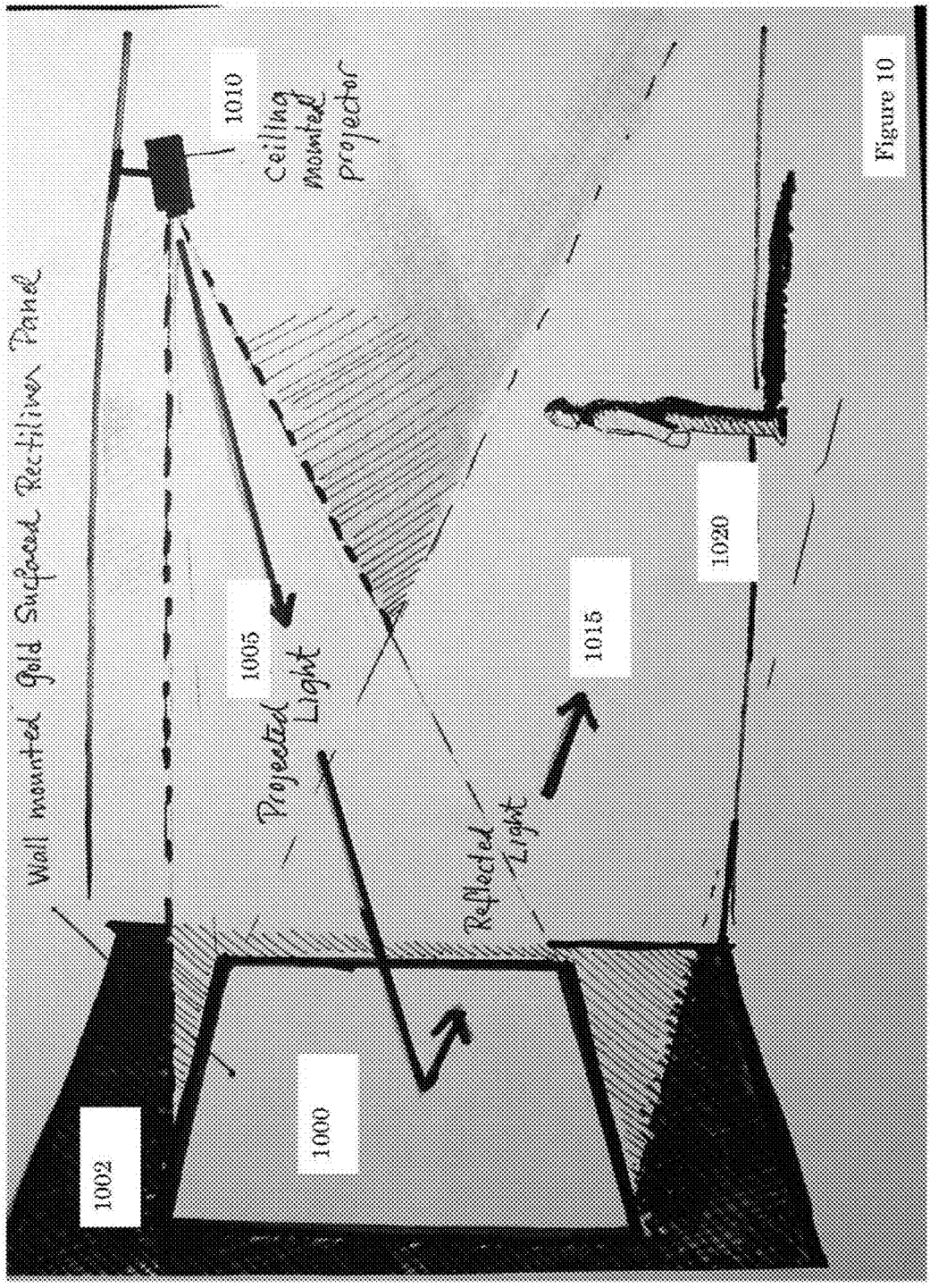

Wall mounted grid Suspend Rectilinear Panel
1010
Ceiling mounted projector
1005
Projected Light
Reflected Light
1015
1020
1000
1002

Figure 10

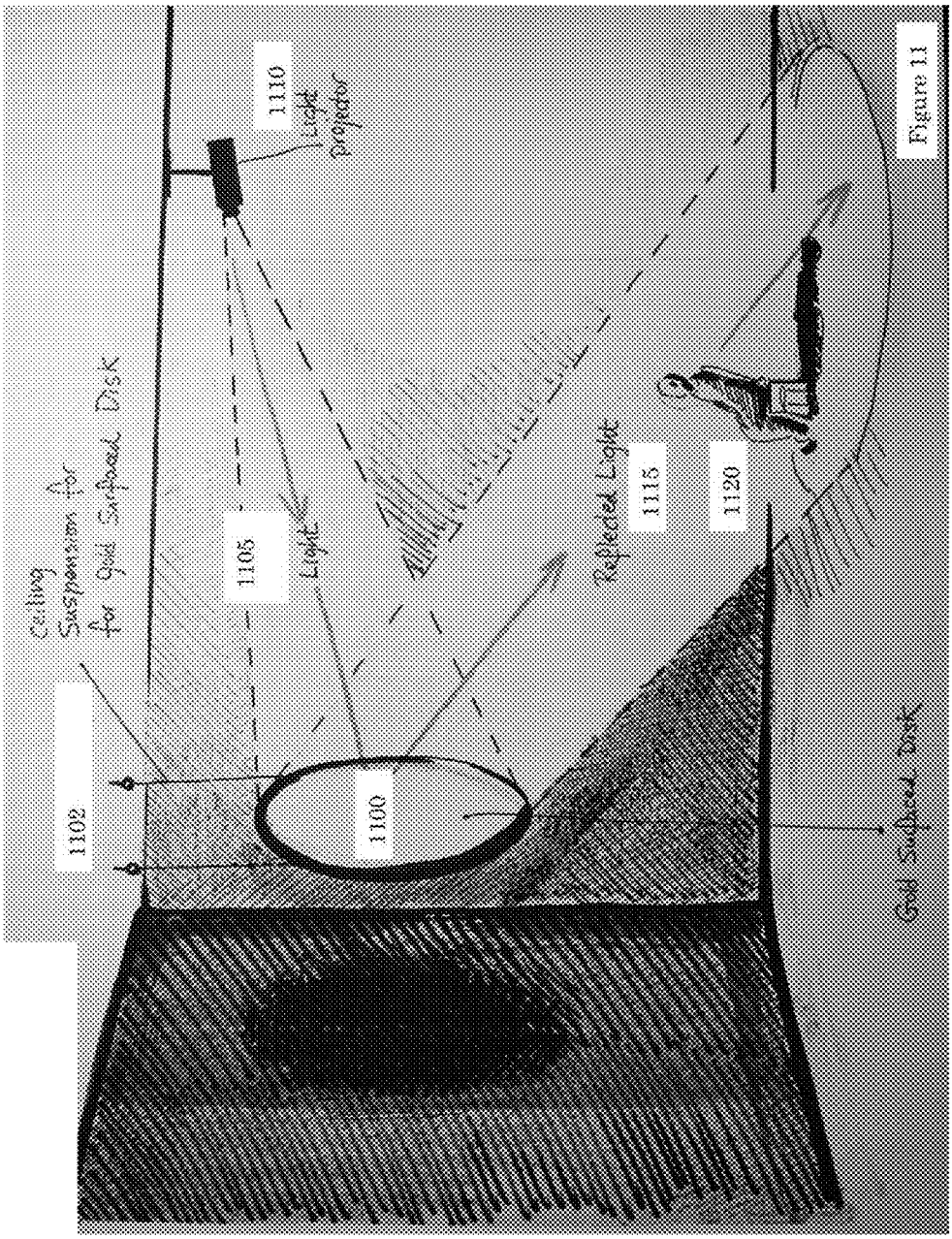

Ceiling Suspension for Projected Surface Disk
1102
1100
1105
Light
1110
Light projector
Reflected Light
1115
1120
Goal Surface Task

Figure 11

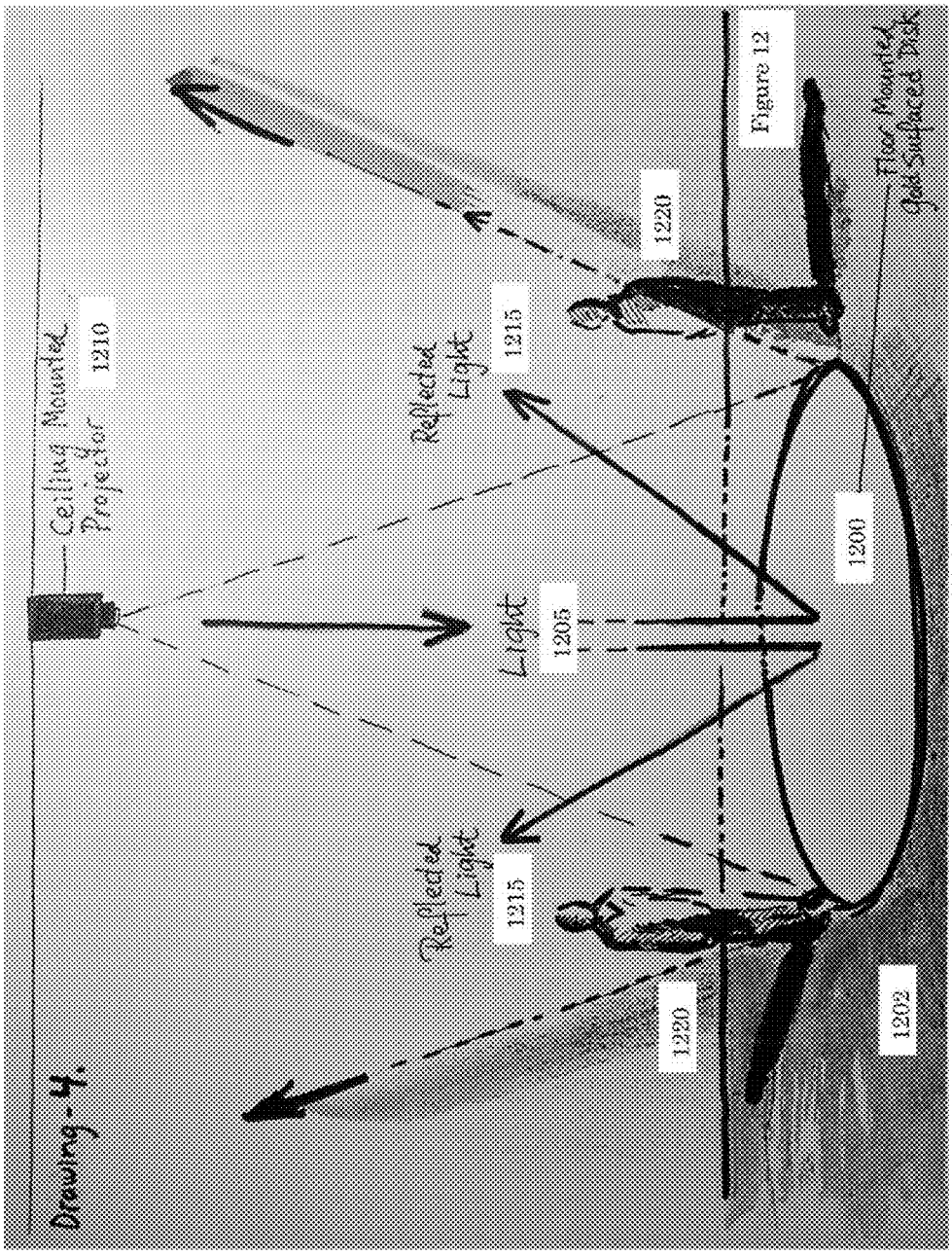

Drawing-4.
Ceiling Mounted Projector
1210
Reflected Light
1215
Light
1205
Reflected Light
1215
1220
1220
1200
1202
Floor Mounted Opti-Surfaced Disk

Figure 12

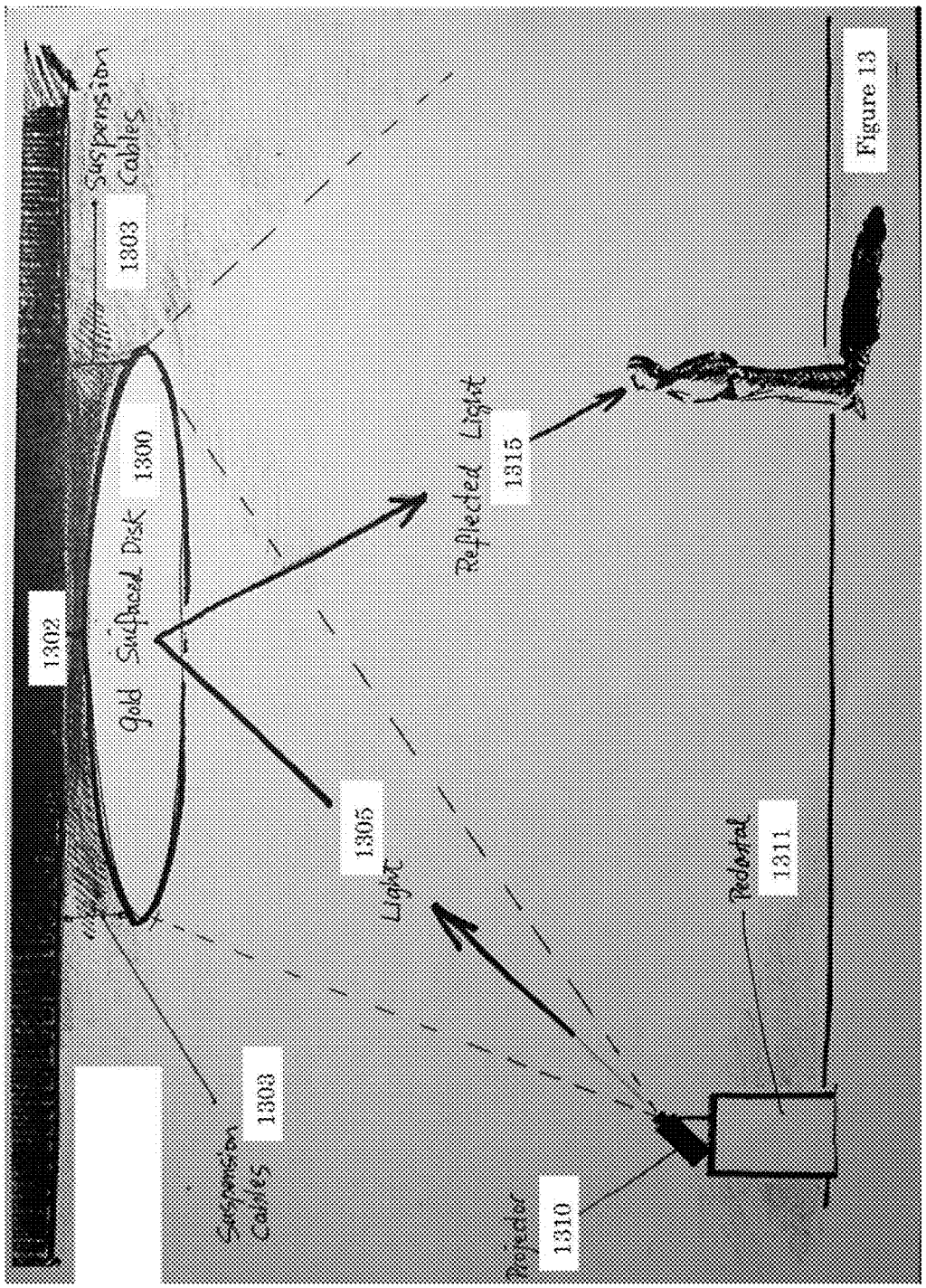

1302
Gold Surfaced Disk
1300
1303
Suspension Cables
1305
Light
Reflected Light
1315
1303
Suspension Cables
1310
Pedestal
1311

Figure 13

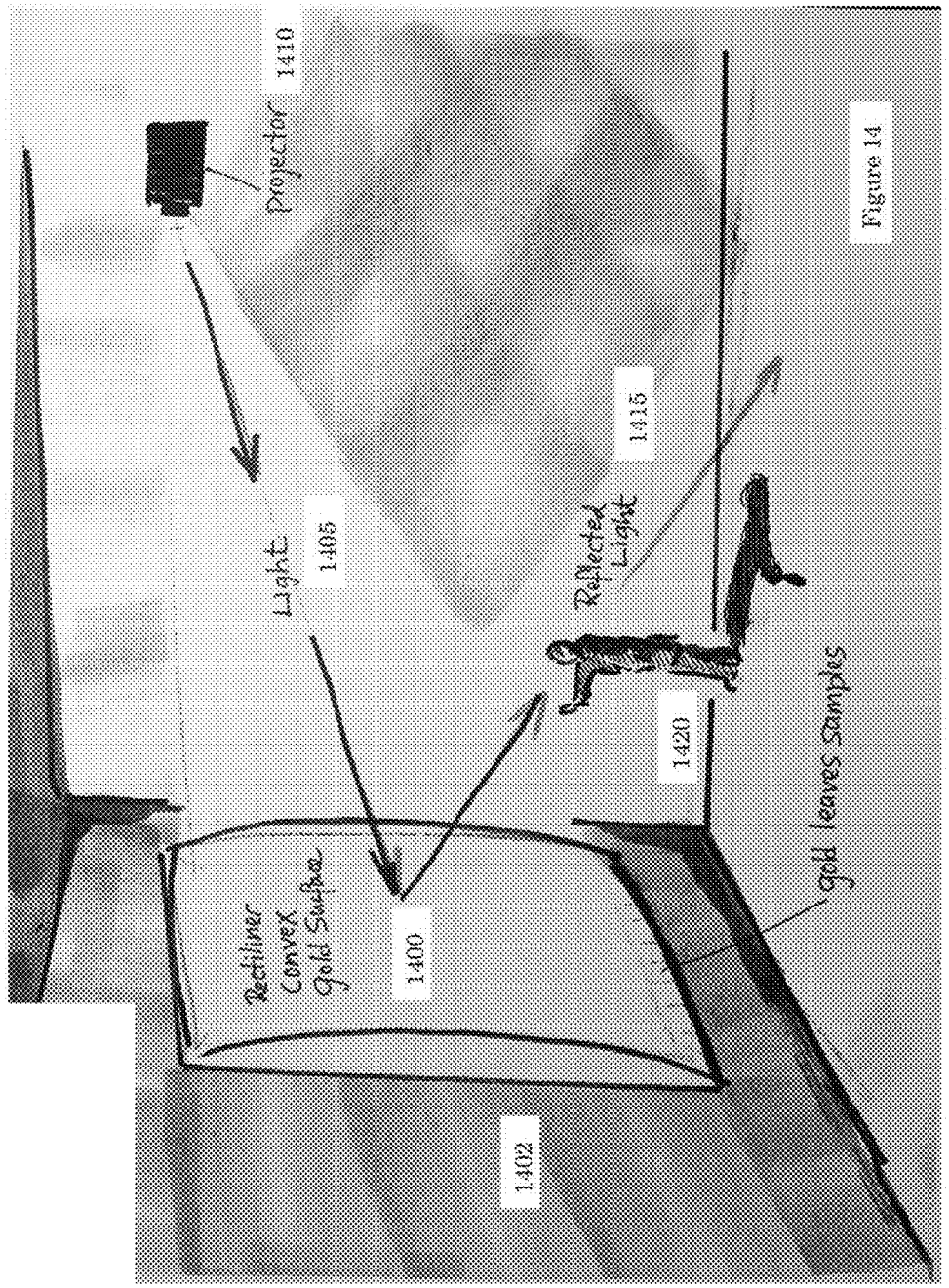

Projector
1410
Light
1405
Reflected Light
1415
Rectilinear Convex Gold Surface
1400
1420
1402
Gold leaves samples

Figure 14

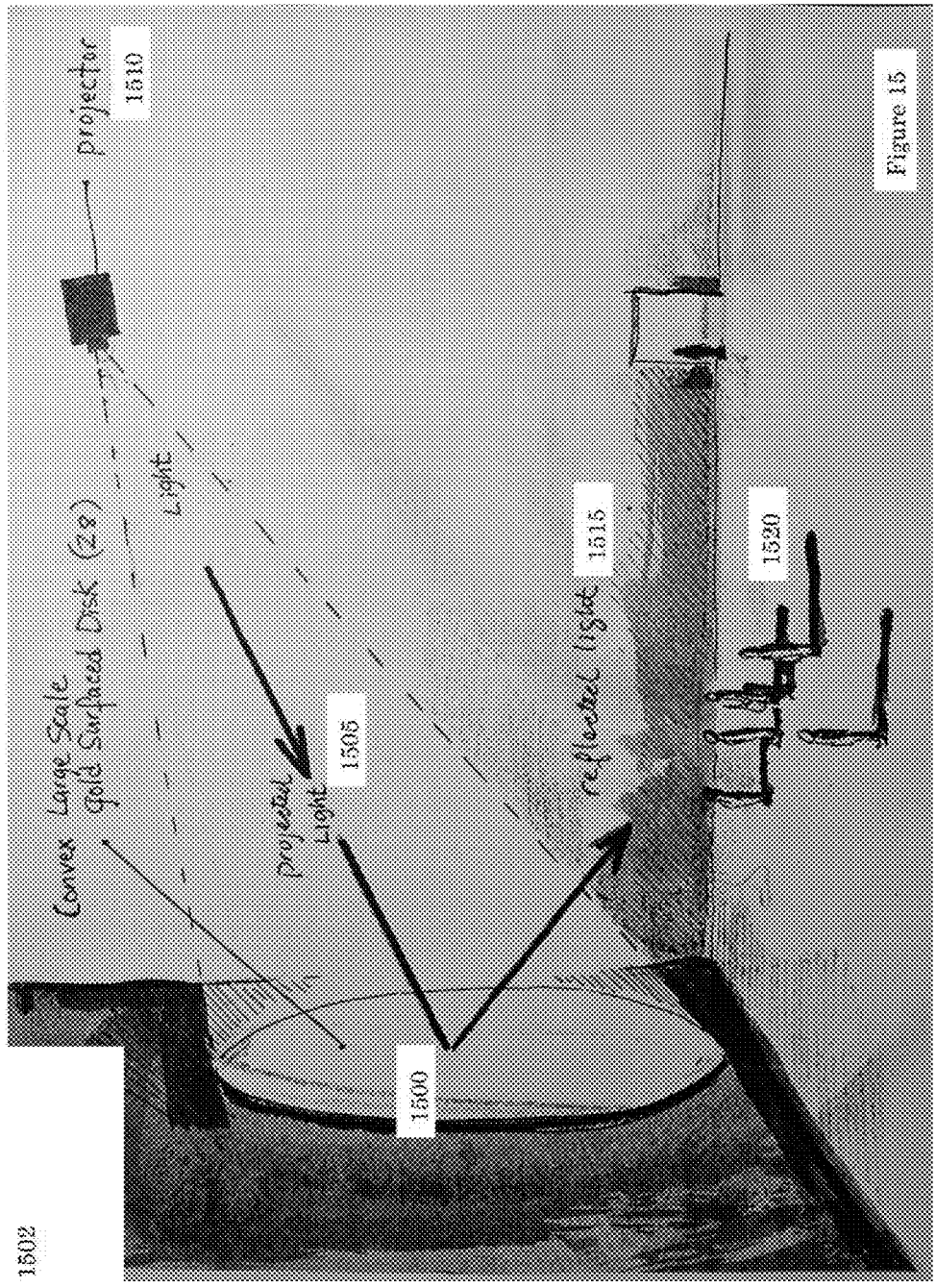

Convex Large Scale
gold Surfaced Disk (2x)
projector
1510
Light
Projected
Light
1505
1500
reflected light
1515
1520
1502

Figure 15

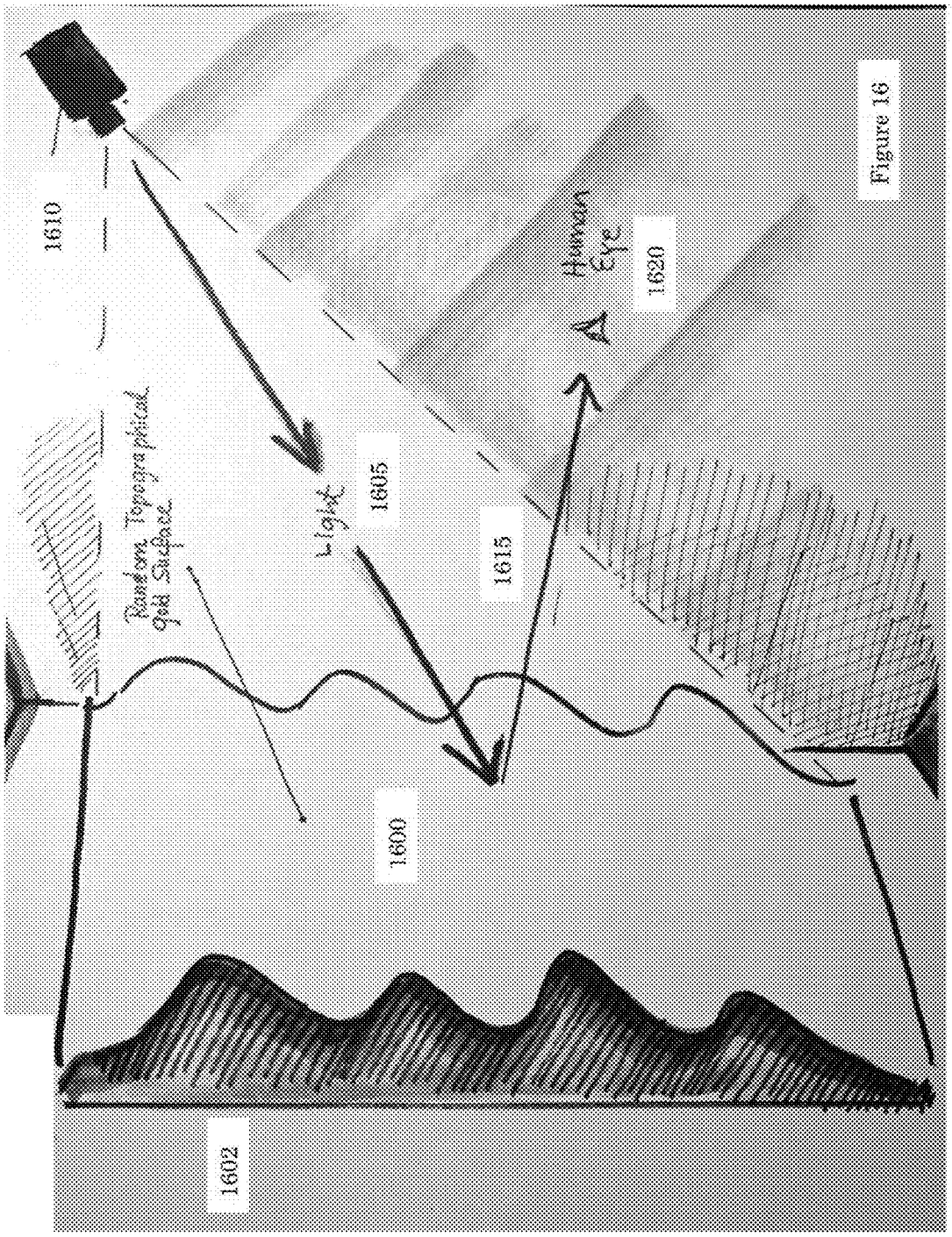

1610
Random Topographical Surface
Light
1605
1615
Human Eye
1620
1600
1602

Figure 16

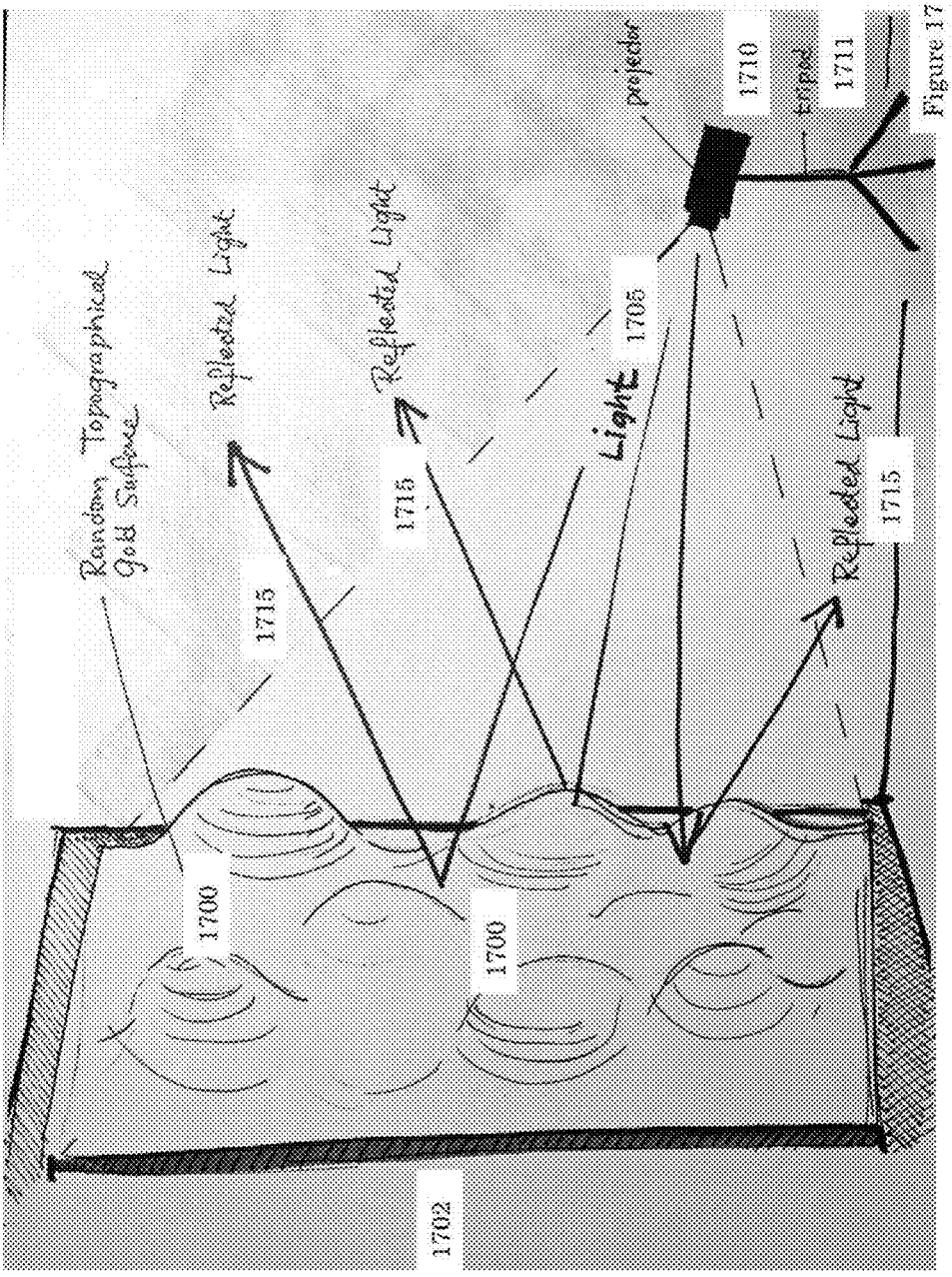
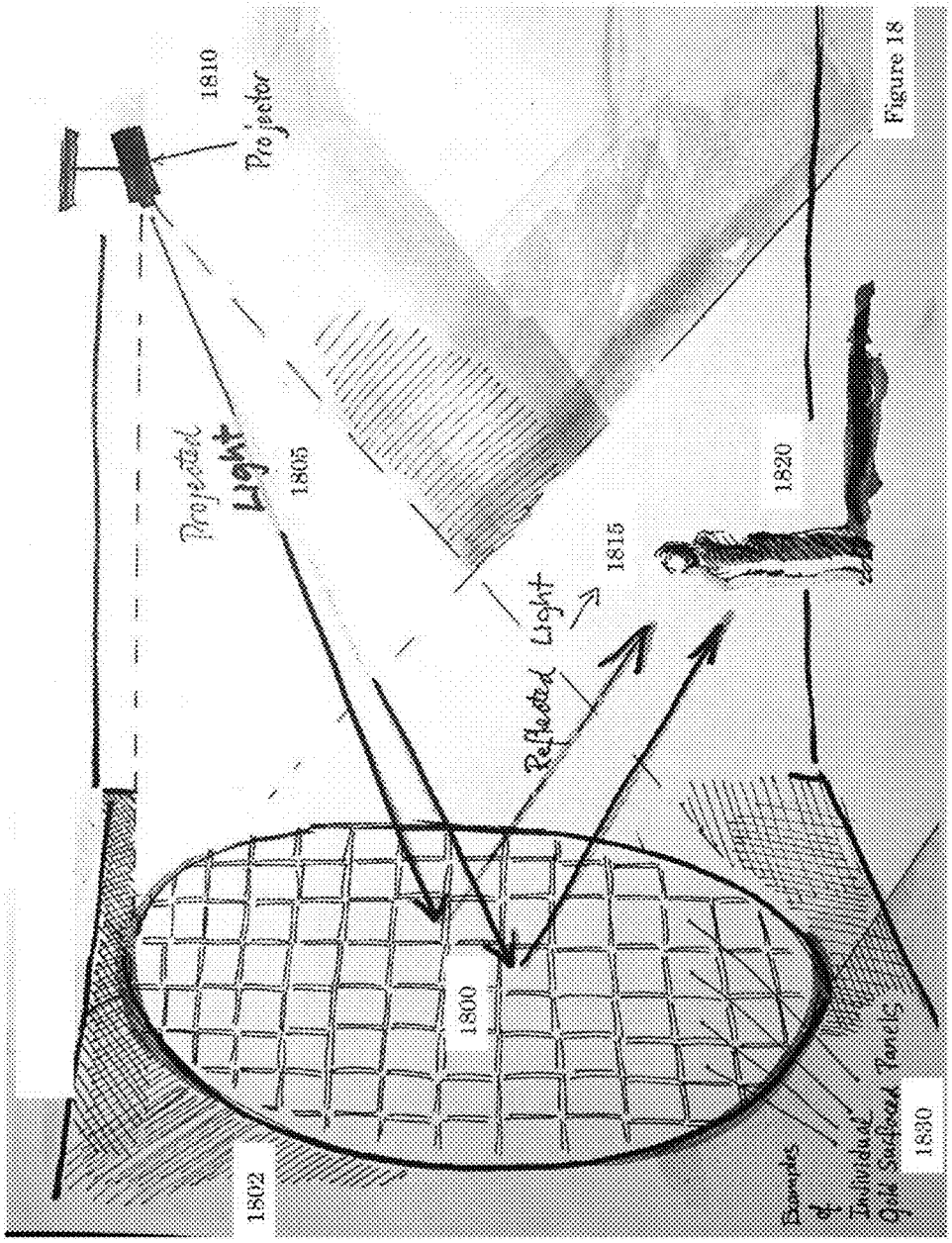
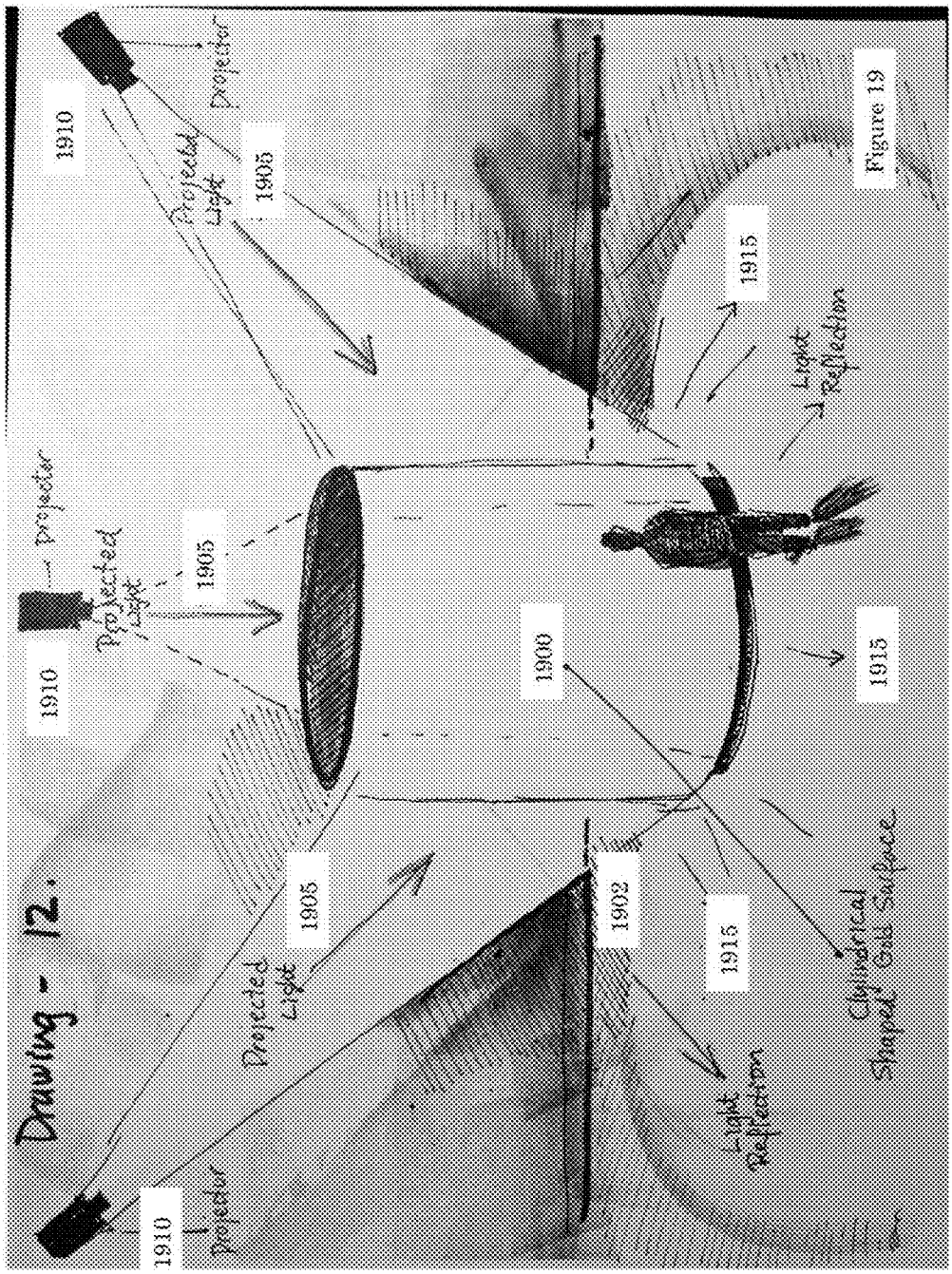

Random Topographical Gold Surface
Reflected Light
1715
Reflected Light
1715
Light 1705
projector
1710
Lens
1711
Reflected Light
1715
1700
1700
1702

Figure 17


1810
Projector
Projected Light
1805
1815
Reflected Light
1820
1800
1802
1830
Figure 18


Drawing - 12.
1910
Projector
Projected Light
1905
1900
1902
1915
Light Reflection
Cylindrical Shaped Cell Surface
Figure 19

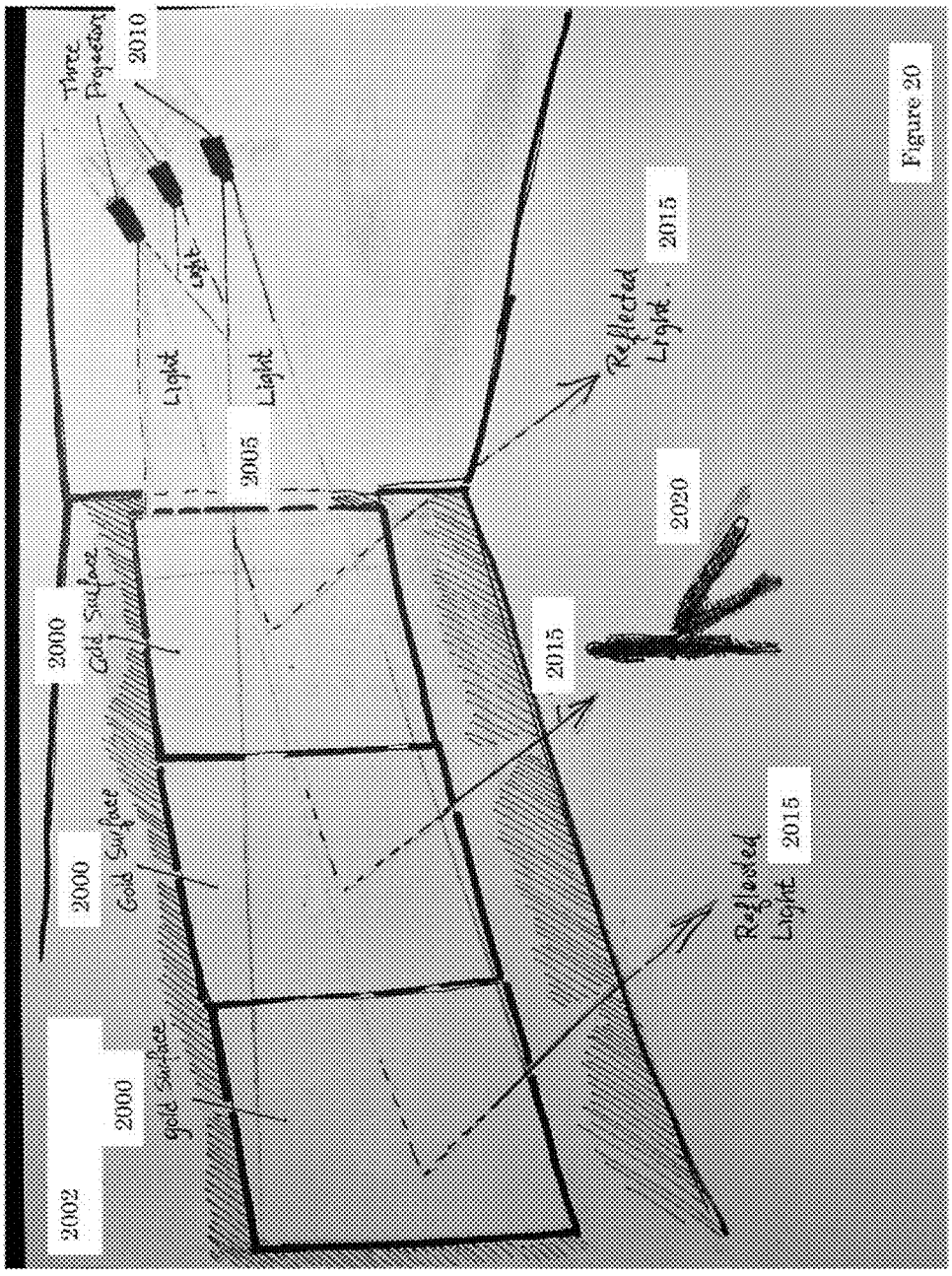

2002
2000
2000
2000
2005
2010
2015
2015
2020
2015
Gold Surface
Gold Surface
gold surface
Tree Projection
Light
Light
Light
Reflected Light
Reflected Light

Figure 20

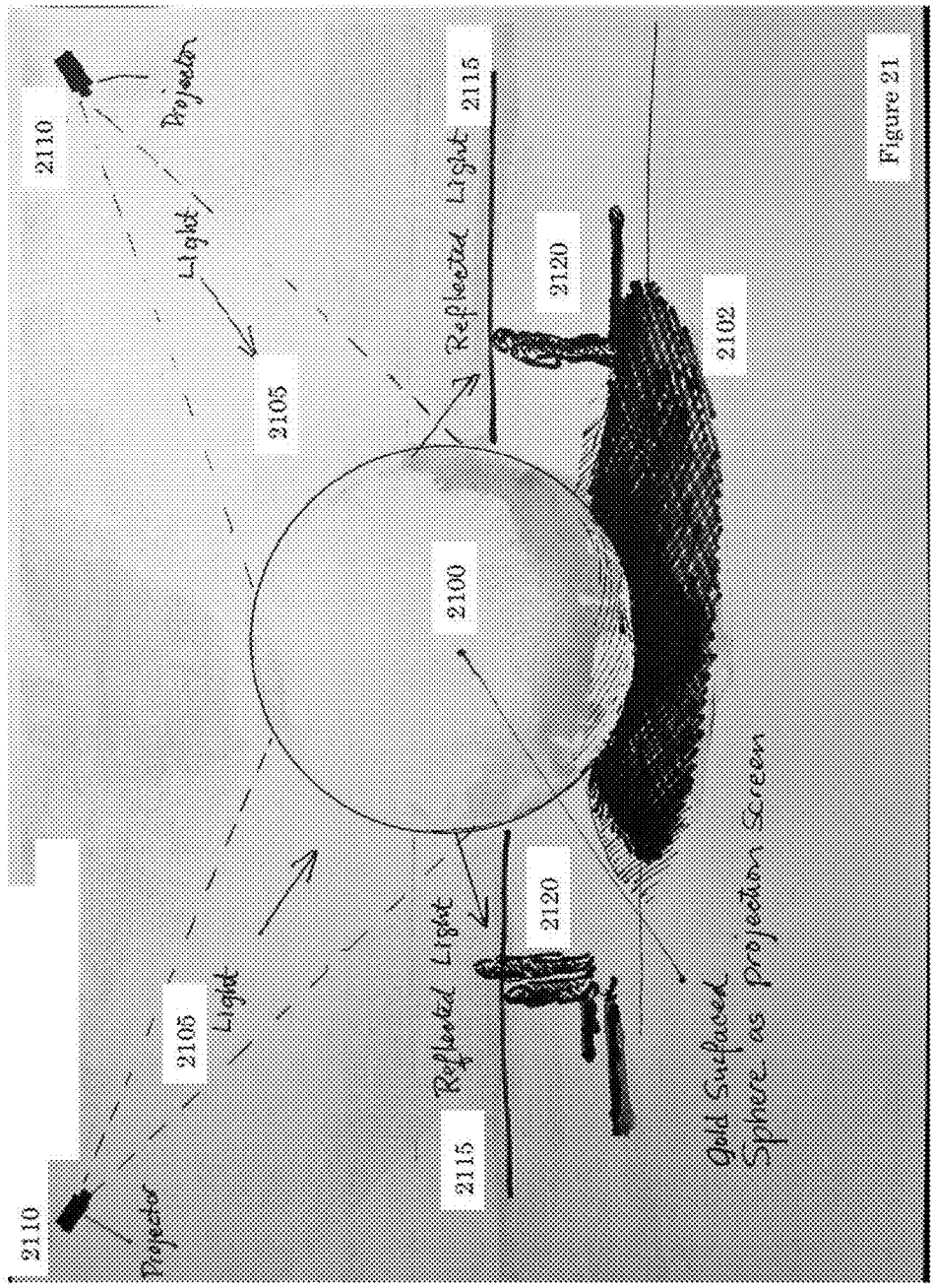

2110
Projector
2105
Light
2100
2115
Reflected Light
2120
2102
Gold Surfaced Sphere as Projection Screen

Figure 21

PROJECTION SCREEN WITH GOLD COATED PROJECTION RECEIVING SURFACE

CROSS REFERENCE TO RELATED APPLICATION

This application claims the benefit of U.S. Provisional Application No. 61/631,786, filed Jan. 11, 2012, and PCT Application No. PCT/US2013/021011, filed Jan. 10, 2013, the content of which are hereby incorporated by reference herein as if fully set forth herein.

FIELD OF INVENTION

This application is related to projection screens.

BACKGROUND

Standard projection screens work on one plane in front of a viewer and are generally not able to provide depth, motion and illusion to a projected image.

SUMMARY

A projection screen has a gold coated projection receiving surface that reflects light. The projection screen includes a support structure and an adhesive layer on top of the support structure. A fiber support is adhered to the support structure using the adhesive layer. A chalk and adhesive layer is applied on to the fiber support and a clay and adhesive layer is applied on to chalk and adhesive layer. A gold layer is applied to the clay and adhesive layer. A light or a portion thereof passes through each of the multiple ordered layers, including the gold layer, the clay and adhesive layer, the chalk and adhesive layer and reflects back a lustrous, iridescent image that has motion and depth qualities with transmuted color characteristics.

BRIEF DESCRIPTION OF THE DRAWINGS

A more detailed understanding may be had from the following description, given by way of example in conjunction with the accompanying drawings wherein:

FIG. **1** is an embodiment of a projection screen with metallic coated projection receiving surface;

FIG. **2** is another embodiment of a projection screen with metallic coated projection receiving surface;

FIG. **3** is another embodiment of a projection screen with metallic coated projection receiving surface;

FIG. **4** is another embodiment of a projection screen with metallic coated projection receiving surface;

FIGS. **5**A and **5**B show an embodiment of a disk shaped projection screen with metallic coated projection receiving surface and a rectilinear screen with metallic coated projection receiving surface in wall mounted configurations;

FIG. **6** is a picture of an embodiment of a disk shaped projection screen with metallic coated projection receiving surface;

FIGS. **7**A-**7**D show an embodiment of a circular projection screen with metallic coated projection receiving surface with different surface topologies;

FIGS. **8**A-**8**D show an embodiment of a rectilinear projection screen with metallic coated projection receiving surface with different surface topologies;

FIG. **9** shows an embodiment of a disk shaped projection screen with metallic coated projection receiving surface in a wall mounted configuration;

FIG. **10** shows an embodiment of a rectilinear projection screen with metallic coated projection receiving surface in a wall mounted configuration;

FIG. **11** shows an embodiment of a disk shaped projection screen with metallic coated projection receiving surface in a vertical suspended configuration;

FIG. **12** shows an embodiment of a disk shaped projection screen with metallic coated projection receiving surface in a floor mounted configuration;

FIG. **13** shows an embodiment of a disk shaped projection screen with metallic coated projection receiving surface in a horizontal suspended configuration;

FIG. **14** shows an embodiment of a rectilinear projection screen with convex metallic coated projection receiving surface in a wall mounted configuration;

FIG. **15** shows an embodiment of a large scale disk shaped projection screen with convex metallic coated projection receiving surface in a wall mounted configuration;

FIG. **16** shows an embodiment of a rectilinear concave and convex projection screen with metallic coated projection receiving surface in a wall mounted configuration;

FIG. **17** shows another embodiment of a rectilinear concave and convex projection screen with metallic coated projection receiving surface in a wall mounted configuration;

FIG. **18** shows an embodiment of a disk shaped projection screen with metallic coated projection receiving surface with multiple panels in a wall mounted configuration;

FIG. **19** shows an embodiment of a cylinder shaped projection screen with metallic coated projection receiving surface in a floor mounted configuration;

FIG. **20** shows an embodiment of multiple rectilinear projection screen with metallic coated projection receiving surfaces with multiple projectors in a wall mounted configuration; and

FIG. **21** shows an embodiment of a sphere shaped projection screen with metallic coated projection receiving surface in a floor mounted configuration.

DETAILED DESCRIPTION

It is to be understood that the figures and descriptions of embodiments of the metallic coated projection receiving surface have been simplified to illustrate elements that are relevant for a clear understanding, while eliminating, for the purpose of clarity, other elements found in typical projection screens and configurations. Those of ordinary skill in the art may recognize that other elements and/or steps are desirable and/or required in implementing the metallic coated projection receiving surface. However, because such elements and steps are well known in the art, and because they do not facilitate a better understanding of the metallic coated projection receiving surface and configurations for use thereof, a discussion of such elements and steps is not provided herein.

The non-limiting embodiments described herein are with respect to metallic coated projection receiving surface and configurations for use thereof. The embodiments and variations described herein, and/or shown in the drawings, are presented by way of example only and are not limiting as to the scope and spirit. The metallic coated projection receiving surfaces may be used in a number of applications.

Although a gold coated projection receiving surface is used herein for the various embodiments, other metals may

also be used as described herein and the term metallic coated projection receiving surface includes gold coated projection receiving surface and other metallic coated projection receiving surfaces.

FIG. **1** shows an embodiment of a projection screen **100** with metallic coated projection receiving surface **105**. The screen **100** further includes a support **115** which may be, but is not limited to, wood **115***a*, metal **115***b*, plastic, fiberglass, carbon **115***c*, acrylic **115***c*, glass **115***c*, a flexible membrane or the like. The support **115** provides the foundation for an adhesive layer **110** and the metallic coated projection receiving surface **105**. The adhesive layer **110** may be, but is not limited to, glue, varnish, tape and the like. In one embodiment, the adhesive layer is rabbit skin glue.

The metallic coated projection receiving surface **105** may be a layer of burnished or unburnished pure gold leaf, burnished or unburnished gold alloy, burnished or unburnished gold plating, burnished or unburnished gold powder, burnished or unburnished gold paint, burnished or unburnished pure platinum leaf, burnished or unburnished platinum alloy, burnished or unburnished platinum plating, burnished or unburnished platinum powder, burnished or unburnished platinum paint, or sprayed on gold powder or paint.

In an embodiment, the metallic coated projection receiving surface **105** may be applied in sheets of gold or platinum leaf. The thin sheets of gold or platinum leaf may come in varying degrees of purity ranging from 6 to 24 karats. Gold leaf alloys may comprise gold and platinum, silver, copper, nickel, or palladium. The gold or platinum leaf may vary in size between 10 and 120 millimeter squares or any other available sizes. The gold or platinum surface may be burnished, polished or may be left as an unfinished matte. In another embodiment, the metallic coated projection receiving surface **105** may be metals, in pure or alloy form, that may include magnesium, aluminum, tin, and lead.

In another embodiment, the metallic coated projection receiving surface **105** may be applied in a powder, in flakes or via paint.

Described herein is a method for making the projection screen **100**. A shape and size for the support **115** is selected. The size of the support **115** may vary from intimate to large, i.e., 20 centimeters to movie screen size. The shape may be circular, rectangular, rectilinear and the like. The surface of the support **115** may be more or less flat but may have a convex, concave, 3-D relief or the like form. The finish on the surface of the support **115** sanded to a desired grit. In an embodiment, the grit is above 600 grit. In another embodiment, the finish is a polished grit.

The adhesive layer **110** is then applied to the surface of the support **115** in multiple layers. In an embodiment, the adhesive layer **110** is a varnish or glue. In one embodiment, the adhesive layer **110** is rabbit skin glue which works by microscopically stitching the wood fibers together. Any gaps in the joint may not be successfully filled and the mating surface must be very smooth as described herein above.

The metallic coated projection receiving surface **105** may then be created by applying, for example, gold leaves. The gold may be laid using a transfer process. For example, the gold is laid down on the semi-dry tack surface using a light substantially even pressure. The application is smooth and consistent throughout the covering of the final surface. In other embodiments, gilding may be implemented through gold plating or an application of a varnish to receive sheets of gold leaf or gold powder.

The resulting layer is a matte like finish of gold. This is highly reflective to light, non-tarnishing, and beautiful gold layer. In an embodiment, a clear sealer is applied over the final gold layer for protection. The clear sealer may be, but is not limited to, lacquer or some other transparent medium.

In the embodiments described herein, gold is a semi-transparent material. Light, for example from a projector **120**, penetrates the gold layer, interacts with the under layers and then bounces back to the eye **125**. The combination of the layers together makes the effect. The contents of each layer in the order described herein forms the gold or metallic screens. The layers make the projections on the gold very powerful. These ordered layers differentiate on ordinary projection from a gold screen projection. In particular, incident light interacts with the screen as the light is incident on the outermost surface. Some of the incident light is reflected by the surface, while some of the light is refracted. The light that is refracted progresses through the screen, and interacts with the subsequent layers of the screen in a similar way. That is, at each successive layer, some of the incident light is reflected by that layer and some of the incident light is refracted through to the next layer. As would be understood by those skilled in the pertinent arts, each layer may also absorb some of the incident light. The output of the reflection by the screen is the accumulation of the light that is reflected from each layer and may incorporate the interactions and properties with each layer that the light interacts with.

Moreover, the hand tooled approach to laying down the gold creates an irregular surface. For example, in the case of water gilding embodiments described herein, the hand tooling of the agate stone makes the surface tremble in the image. In an embodiment, these techniques allow for a breathing, trembling image. In another embodiment, these techniques may also allow for a stable solid image that anchors the screen with light. In addition, the choice of topology for the surface, i.e. concave, convex, flat or a combination thereof, induces the effect of a floating world.

All the colors need to be color corrected specific to the screen **100**. The films or content to be projected on the screen **100** is edited as the films or content is projected on the screen **100**. Each film or content is designed specifically for the screen. The resulting films are termed gold projections. Normal projection screens will not produce this effect. In this embodiment, the gold surface makes the difference.

In particular, these gold projections have an increased luminosity with respect to the projected image. The luminosity of the image is increased. The surface of the screen is so highly reflective it gives the illusion of being the source of light as opposed to a projection screen. For example, burnished gold is highly reflective. A smaller surface area is needed as compared to standard screens. The gold reflects the light back and absorbs very little of the light. The percentage of returned light is nearly double as compared to, for example, a standard white screen surface. The effect is a shimmering quality of image and the surface takes on a mercurial sense of fluidity. The light has a lustrous, iridescent quality. The chatoyant surface on the screen catches the light and returns it much like the light in an animal's eye illuminated at night. This reflection is intentional and evenly distributed across the surface.

The gold screen provides an enhanced sense of motion in the projected image. The surface takes on a quality of an animated painting. Motion and the illusion of motion in the imagery are increased intentionally. Small details tremble and when the viewer moves minor amounts, for example, 2 inches, the images are slightly altered and shifted in the viewer's eye. When the viewer moves greater amounts, for example, 8 feet, the images takes on a ghostly shift and the

light source (the projector) moves in the image. The viewer enters into a dialogue with the screen.

The gold screen provides an enhanced sense of depth in the image. The depth of the projected image is enhanced. The light travels through the gold layer to the bole and gesso layers (as in the embodiments for FIGS. **2-4**), and returns to the viewer. This layering gives the effect of looking at the surface of water and into the water at the same time. White or standard screens do not carry this illusion and work on one plane in front of the viewer. The micro-shadows and details in contrasts are enhanced by the hand tooled irregular surface. This surface quality creates the effect of depth of an interior surface and exterior surface. One sees the gold surface, the imagery projected and shadow world behind the surface.

The gold and layers physically enhance and transmute the perceived colors in the image. The color of the gold with the color of the bole and finally the white gesso, alter the returning colors to the viewer. Reds become intensified, greens saturate, blues deepen and the light colors become iridescent. These colors can be intentionally altered in hue and intensity in the projections. Darker colors fall back in the plane and become saturated and richer. Each screen, on each of layers, will affect the colors.

The above description is applicable to all embodiments described herein.

FIG. **2** is an embodiment of a projection screen **200** with metallic coated projection receiving surface **228**. The screen **200** further includes a support **210** which may be, but is not limited to, wood **210***a*, metal **210***b*, plastic, fiberglass, carbon **210***c*, acrylic **210***c*, glass **210***c*, a flexible membrane or the like. The support **210** provides the foundation for an adhesive layer **220**, a fiber support **222**, a chalk and glue layer **224**, a clay and glue layer **226** and the metallic coated projection receiving surface **228**.

The adhesive layer **220** may be, but is not limited to, glue, varnish, tape and the like. In one embodiment, the adhesive layer is rabbit skin glue. The fiber support or layer **222** may be a cloth support or a membrane. The fiber support or layer **222** is applied and tightly glued to the support **210**. The fiber support or layer **222** is used to help stabilize the surface from expanding and contracting in weather cycles, such as temperature, moisture, humidity, and air flow, for example. For example, when applied to wood, the fiber support or layer **222** covers cracks. The fiber support or layer **222** also acts as a cushion for the remaining layers.

The chalk and glue layer **224**, (also known as a gesso layer), is a combination of a basic chalk substance such as calcium carbonate, with a glue, such as, for example, rabbit skin glue. The calcium carbonate nominally comes in a fine white powder that can be mixed with the glue. The clay and glue layer **226**, (also known as a bole layer), is a final adhesive clay covering the gesso layer **224**. The bole layer **226** resembles dark red mud and is mixed with rabbit skin glue. It is painted on in multiple layers. It comes in many earthen colors, for example, red, yellow, brown, grey, black, white, green, and blue clay. This is important because the bole layer **226** shows through the final layer of gold and affects the hue of the projected light. The metallic coated projection receiving surface **228** may be as described herein above.

Described herein is a method for making the projection screen **200**. A shape and size for the support **210** is selected and finished as described herein above. The adhesive layer **220** is then applied to the surface of the support **210** in multiple layers as described herein above. The fiber support or layer **222** is applied by laying a layer of glue and bringing the cloth down carefully in contact with the support **210**. Any bubbles are pushed out and a firm perfect adherence is achieved.

The gesso layer **224** is then applied in layers. The chalk is mixed with rabbit skin glue at, for example, blood warm temperature, to form the gesso. For example, the temperature may be between 90° F. to 110° F. The gesso is then applied in multiple layers. For example, the number of layers may be around twelve. After the layers are dry, it is sanded to a desired finish. For example, the finish may be rough, medium, fine or polished. In an embodiment, the desired finish is a very fine polish. For example, a **600** grit sandpaper may be used. In another example, a 1200-1600 grit sandpaper may be used to obtain a more perfect sanded surface. The bole layer **226** is then applied in multiple layers. This is sanded fine and polished.

The metallic coated projection receiving surface **228** is then created by applying, for example, gold leaves. The gold, for example, is laid down using a water gilding process. The gold leaves are floated on a thin layer of water. After the water is absorbed and the surface **228** becomes dank, an agate stone is used to crush the gold layer down making it one with the layers above. This is nominally done a few millimeters at a time. In other embodiments, gilding may be implemented through gold plating or an application of a varnish to receive sheets of gold leaf or gold powder. The resulting layer is termed bright gold. This is highly reflective to light, non-tarnishing, and a beautiful gold layer. In an embodiment, a clear sealer is applied over the final gold layer for protection. The clear sealer may be, but is not limited to, lacquer or some other transparent medium.

In this embodiment, a light beam **232** from a projector **230** penetrates the gold layer, interacts with the under layers and then reflects back **234** to the eye **240** as described herein above. The effects on the projected image as described herein above are thus established.

FIG. **3** is another embodiment of a projection screen **300** with metallic coated projection receiving surface **326**. The screen **300** includes a support **310** which is wood. The support **310** provides the foundation for an adhesive layer **320**, a fiber support **322**, a chalk and glue layer **323**, a clay and glue layer **324** and the metallic coated projection receiving surface **326**.

The adhesive layer **320** may be, but is not limited to, glue, varnish, tape and the like. In one embodiment, the adhesive layer is rabbit skin glue. The fiber support or layer **322** may be a cloth support or a membrane. The fiber support or layer **322** is applied and tightly glued to the support **310**. The fiber support or layer **322** is used to help stabilize the surface from expanding and contracting in weather cycles. For example, when it applied to wood, it covers cracks. The fiber support or layer **322** also acts as a cushion for the remaining layers.

The chalk and glue layer **323**, (also known as a gesso layer), is a combination of a basic chalk substance such as calcium carbonate, with a glue, such as, for example, rabbit skin glue. The calcium carbonate nominally comes in a fine white powder that can be mixed with the glue. The clay and glue layer **324**, (also known as a bole layer), is the final adhesive clay covering the chalk and glue layer **323**. The bole layer **324** resembles dark red mud and is mixed with rabbit skin glue. It is painted on in multiple layers. It comes in many earthen colors, for example, red, brown, grey, black, green, and blue. This is important because the bole layer **324** shows through the final layer of gold and affects the hue of the projected light. The metallic coated projection receiving surface **326** may be as described herein above.

Described herein is a method for making the projection screen **300**. A shape and size for the support **310** is selected and finished as described herein above. The adhesive layer **320** is then applied to the surface of the support **310** in multiple layers as described herein above. The fiber support or layer **322** is applied by laying a layer of glue and bringing the cloth down carefully in contact with the support **310**. Any bubbles are pushed out and a firm perfect adherence is achieved.

The gesso layer **323** is then applied in layers. The chalk is mixed with rabbit skin glue at, for example, blood warm temperature, to form the gesso. For example, the temperature may be between 90° F. to 110° F. The gesso is then applied in multiple layers. For example, the number of layers may be around twelve. After the layers are dry, it is sanded to a desired finish. For example, the finish may be rough, medium, fine or polished. In an embodiment, the desired finish is a very fine polish. For example, a **600** grit sandpaper may be used. In another example, a 1200-1600 grit sandpaper may be used to obtain a more perfect sanded surface. The bole layer **324** is then applied in multiple layers as described herein above. The metallic coated projection receiving surface **326** is then applied as described herein above. In an embodiment, a clear sealer may be applied as described herein above.

In this embodiment, a light beam **332** from a projector **330** penetrates the gold layer, interacts with the under layers as described herein and then reflects back **334** to the eye **340**. The effects on the projected image as described herein above are thus established.

FIG. **4** is another embodiment of a projection screen **400** with metallic coated projection receiving surface **428**. The screen **400** further includes a support **410** which is, for example, wood. The support **410** provides the foundation for a foam support **415**, an adhesive layer **420**, a fiber support **422**, a chalk and glue layer **424**, a clay and glue layer **426** and the metallic coated projection receiving surface **428**.

The foam support **415** may be a polystyrene support that provides rigidity to the wood support **410**. The adhesive layer **420** may be, but is not limited to, glue, varnish, tape and the like. In one embodiment, the adhesive layer is rabbit skin glue. The fiber support or layer **422** may be a cloth support or a membrane. The fiber support or layer **422** is applied and tightly glued to the support **410**. The fiber support or layer **422** is used to help stabilize the surface from expanding and contracting in weather cycles. For example, when it applied to wood, it covers cracks. The fiber support or layer **422** also acts as a cushion for the remaining layers.

The chalk and glue layer **424**, (also known as a gesso layer), is a combination of a basic chalk substance such as calcium carbonate, with a glue, such as, for example, rabbit skin glue. The calcium carbonate nominally comes in a fine white powder that can be mixed with the glue. The clay and glue layer **426**, (also known as a bole layer), is the final adhesive clay covering the gesso layer **424**. The bole layer **426** resembles dark red mud and is mixed with rabbit skin glue. It is painted on in multiple layers. It comes in many earthen colors, for example, red, brown, grey, black, green, and blue. This is important because the bole layer **426** shows through the final layer of gold and affects the hue of the projected light. The metallic coated projection receiving surface **428** may be as described herein above.

Described herein is a method for making the projection screen **400**. A shape and size for the support **410** is selected and finished as described herein above. The adhesive layer **420** is then applied to the surface of the support **410** in multiple layers as described herein above. The fiber support or layer **422** is applied by laying a layer of glue and bringing the cloth down carefully in contact with the support **410**. Any bubbles are pushed out and a firm perfect adherence is achieved.

The gesso layer **424** is then applied in layers. The chalk is mixed with rabbit skin glue at, for example, blood warm temperature, to form the gesso. For example, the temperature may be between 90° F. to 110° F. The gesso is then applied in multiple layers. For example, the number of layers may be around twelve. After the layers are dry, it is sanded to a desired finish. For example, the finish may be rough, medium, fine or polished. In an embodiment, the desired finish is a very fine polish. For example, a **600** grit sandpaper may be used. In another example, a **1200** grit sandpaper may be used to obtain a perfect surface. The bole layer **426** is then applied in multiple layers. This is sanded fine and polished. The metallic coated projection receiving surface **428** is then applied as described herein above. In an embodiment, a clear sealer may be applied as described herein above.

In this embodiment, a light beam **432** from a projector **430** penetrates the gold layer, interacts with the under layers and then reflects back **434** to the eye **440**. The effects on the projected image as described herein above are thus established.

FIGS. **5**A and **5**B show an embodiment of a disk shaped projection screen with metallic coated projection receiving surface **500** and a rectilinear projection screen with metallic coated projection receiving surface **505** in a wall mounted or ceiling suspended configuration. The disk shaped projection screen with metallic coated projection receiving surface **500** and the rectilinear projection screen with metallic coated projection receiving surface **505** are prepared as described herein above on a human scale configuration. In this embodiment, the disk shaped projection screen with metallic coated projection receiving surface **500** and the rectilinear projection screen with metallic coated projection receiving surface **505** receive projected light **510** and **512** from multiple ceiling or wall-mounted projectors **520** and **522**, respectively, and reflect the light **530** and **532**, respectively, into a viewers vision **540** and **542**, respectively. In this embodiment, the gold surface is comprised of gold leaves **550**. FIG. **6** is a picture of an embodiment of a disk shaped projection screen with metallic coated projection receiving surface **600**.

FIGS. **7**A-**7**D show an embodiment of a circular projection screen **700** with metallic coated projection receiving surface with different surface topologies. FIG. **7**B shows an embodiment of screen **700** of FIG. **7**A with a flat surface **705**. FIG. **7**C shows an embodiment of screen **700** of FIG. **7**A with a convex surface **710**. FIG. **7**D shows an embodiment of screen **700** of FIG. **7**A with a concave surface **715**.

FIGS. **8**A-**8**D show an embodiment of a rectilinear projection screen **800** with metallic coated projection receiving surface with different surface topologies. FIG. **8**B shows an embodiment of screen **800** of FIG. **8**A with a flat surface **805**. FIG. **8**C shows an embodiment of screen **800** of FIG. **8**A with a convex surface **810**. FIG. **8**D shows an embodiment of screen **800** of FIG. **8**A with a concave surface **815**.

The embodiments described herein use a disk shaped or rectilinear projection screen for purposes of illustration only. Other shapes may be used using the methods and configurations described herein.

FIG. **9** shows an embodiment of a disk shaped projection screen **900** with metallic coated projection receiving surface in a wall mounted configuration. The screen **900** is prepared as described herein and mounted on a wall **902** to receive

projected light **905** originating from a ceiling mounted light projector **910**. The screen **900** reflects the light **915** towards a viewer **920**.

FIG. **10** shows an embodiment of a rectilinear projection screen **1000** with metallic coated projection receiving surface in a wall mounted configuration. The screen **1000** is prepared as described herein and mounted on a wall **1002** to receive projected light **1005** originating from a ceiling mounted light projector **1010**. The screen **1000** reflects the light **1015** towards a viewer **1020**.

FIG. **11** shows an embodiment of a disk shaped projection screen **1100** with metallic coated projection receiving surface in a vertical suspended configuration. The screen **1100** is prepared as described herein and suspended from a ceiling **1102** to receive projected light **1105** originating from a ceiling mounted light projector **1110**. The screen **1100** reflects the light **1115** towards a viewer **1120**.

FIG. **12** shows an embodiment of a disk shaped projection screen **1200** with metallic coated projection receiving surface in a floor mounted or positioned configuration. The screen **1200** is prepared as described herein and mounted or positioned on a floor **1202** to receive projected light **1205** originating from a ceiling mounted light projector **1210**. The screen **1200** reflects the light **1215** towards a viewer **1220**.

FIG. **13** shows an embodiment of a disk shaped projection screen **1300** with metallic coated projection receiving surface in a horizontal suspended configuration. The screen **1300** is prepared as described herein and mounted on a ceiling **1302**, (using suspension cables **1303**), to receive projected light **1305** originating from a floor mounted light projector **1310**, (i.e. on pedestal **1311**). The screen **1300** reflects the light **1315** towards a viewer **1320**.

FIG. **14** shows an embodiment of a rectilinear convex projection screen **1400** with metallic coated projection receiving surface in a wall mounted configuration. The screen **1400** is prepared as described herein and mounted on a wall **1402** to receive projected light **1405** originating from a ceiling mounted light projector **1410**. The screen **1400** reflects the light **1415** towards a viewer **1420**.

FIG. **15** shows an embodiment of a large scale disk shaped convex projection screen **1500** with metallic coated projection receiving surface in a wall mounted configuration. The screen **1500** is prepared as described herein and mounted on a wall **1502** to receive projected light **1505** originating from a ceiling mounted light projector **1510**. The screen **1500** reflects the light **1515** towards multiple viewers **1520**.

FIG. **16** shows an embodiment of a rectilinear concave and convex projection screen **1600** with metallic coated projection receiving surface in a wall mounted configuration. The screen **1600** is prepared as described herein and mounted on a wall **1602** to receive projected light **1605** originating from a ceiling mounted light projector **1610**. The screen **1600** reflects the light **1615** towards a viewer **1620**.

FIG. **17** shows another embodiment of a rectilinear concave and convex projector screen **1700** with metallic coated projection receiving surface in a wall mounted configuration. The screen **1700** is prepared as described herein and mounted on a wall **1702** to receive projected light **1705** originating from a floor mounted light projector **1710**, (sitting on a pedestal **1711**). The screen **1700** reflects the light **1715** in multiple directions.

FIG. **18** shows an embodiment of a disk shaped projection screen **1800** with metallic coated projection receiving surface with multiple panels **1830** in a wall mounted configuration. The screen **1800** is prepared as described herein and mounted on a wall **1802** to receive projected light **1805** originating from a ceiling mounted light projector **1810**. The screen **1800** reflects the light **1815** towards a viewer **1820**.

FIG. **19** shows an embodiment of a cylinder shaped projection screen **1900** with metallic coated projection receiving surface in a floor mounted configuration. The screen **1900** is prepared as described herein and mounted or positioned on a floor **1902** to receive projected light **1905** originating from multiple ceiling mounted light projectors **1910**. The screen **1900** reflects the light **1915** in multiple directions **1920**.

FIG. **20** shows an embodiment of multiple rectilinear projector screens **2000** each with metallic coated projection receiving surfaces with multiple projectors in a wall mounted configuration. The screens **2000** are prepared as described herein and mounted on a wall **2002** to receive projected light **2005** originating from ceiling mounted light projectors **2010**. The screen **2000** reflects the light **2015** towards a respective viewer **2020**.

FIG. **21** shows an embodiment of a sphere shaped projector screen **2100** with metallic coated projection receiving surface in a floor mounted configuration. The screen **2100** is prepared as described herein and mounted or positioned on a floor **2102** to receive projected light **2105** originating from ceiling mounted light projectors **2110**. The screen **2100** reflects the light **2115** towards viewers **2120**.

In summary, a projection screen may be prepared as described herein. The projection screen may be a circular shape, a rectilinear shape, a cylindrical shape, a globe-like shape or the like. The surface of the projection screen may have a convex exterior shape, a concave shape, a flat shape, or a convex and concave shape. The projection screen may be mounted or positioned on a vertical wall, on a floor, or on a ceiling. The projection screen may be any size. The projector may comprise one or multiple projectors. The projector may be ceiling mounted, wall mounted, or floor mounted. The above combinations and configurations show possible embodiments and are not intended to limit the scope of the projection screen described herein.

As described herein, the methods described herein are not limited to any particular element(s) that perform(s) any particular function(s) and some steps of the methods presented need not necessarily occur in the order shown. For example, in some cases two or more method steps may occur in a different order or simultaneously. In addition, some steps of the described methods may be optional (even if not explicitly stated to be optional) and, therefore, may be omitted. These and other variations of the methods disclosed herein will be readily apparent, especially in view of the description of the metallic coated projection receiving surface and configurations for use thereof described herein, and are considered to be within the full scope of the invention.

Although features and elements are described above in particular combinations, each feature or element can be used alone without the other features and elements or in various combinations with or without other features and elements.

What is claimed is:

1. A projection screen with a gold coated projection receiving surface for reflecting light, consisting of:

a support structure;

an adhesive layer on top of the support structure;

a fiber support glued to the support structure using the adhesive layer;

at least one chalk and adhesive layer applied on to the fiber support;

at least one clay and adhesive layer applied on to the at least one chalk and glue adhesive; and

at least one gold layer applied to the at least one clay and glue adhesive layer to form the gold coated projection receiving surface,

wherein at least a portion of light that is projected onto the gold coated projection surface passes through ones of at least the at least one gold layer, the at least one clay and adhesive layer, the at least one chalk and adhesive layer and wherein the projection screen reflects back a lustrous, iridescent image that has motion and depth qualities with transmuted color characteristics.

2. The projection screen of claim **1**, wherein the adhesive layer is at least one of glue, varnish, and tape.

3. The projection screen of claim **1**, wherein the support structure is at least one of wood, metal, plastic, fiberglass, carbon, acrylic, glass, and a flexible membrane.

4. The projection screen of claim **1**, wherein the fiber support is one of cloth or membrane.

5. The projection screen of claim **1**, wherein the at least one clay and adhesive layer includes at least one of red, yellow, brown, grey, black, white, green, and blue clay.

6. The projection screen of claim **1**, wherein the gold coated projection receiving surface has at least one of a concave, convex and flat topology.

7. A method for making a projection screen with a gold coated projection receiving surface for reflecting light, consisting of:

providing a support structure having a predetermined surface topology;

adhering a fiber support to the support structure;

constructing a multilayered gesso layer on to the fiber support;

constructing a multilayered bole layer applied on to the multilayered gesso layer; and

constructing a gold layer on to the multilayered bole layer to form the gold coated projection receiving surface,

wherein at least a portion of light that is projected onto the gold coated projection receiving surface passes through ones of at least the at least one gold layer, the at least one clay and adhesive layer, the at least one chalk and adhesive layer and wherein the projection screen reflects back a lustrous, iridescent image that has motion and depth qualities with transmuted color characteristics.

8. The method of claim **7**, wherein the constructing a multilayered gesso layer includes:

mixing a chalk and adhesive to form a gesso in a predetermined temperature range;

applying multiple layers of the gesso; and

sanding the multiple layers to a desired finish when the multiple layers are dry.

9. The method of claim **8**, wherein the constructing a multilayered bole layer includes:

mixing a clay and adhesive to form a bole;

applying multiple layers of the bole; and

sanding the multiple layers to a desired finish.

10. The method of claim **9**, wherein the support structure is at least one of wood, metal, plastic, fiberglass, carbon, acrylic, glass, and a flexible membrane.

11. The method of claim **10**, wherein the constructing a gold layer includes:

laying down gold leaves on to a thin layer of water; and

crushing the gold leaves and making it one with layers above, wherein the layers above are at least the multilayered bole layer, and the multilayered gesso layer.

12. The method of claim **11**, wherein the multilayered bole layer includes at least one of red, yellow, brown, grey, black, white, green, and blue clay.

13. The method of claim **12**, wherein the gold coated projection receiving surface has at least one of a concave, convex and flat topology.

14. A projection screen with a gold coated projection receiving surface for reflecting light prepared by a method consisting of the steps of:

providing a support structure having a predetermined surface topology;

adhering a fiber support to the support structure;

constructing a multilayered gesso layer on to the fiber support;

constructing a multilayered bole layer applied on to the multilayered gesso layer; and

constructing a gold layer on to the multilayered bole layer to form the gold coated projection receiving surface,

wherein at least a portion of light that is projected onto the gold coated projection receiving surface passes through ones of at least the at least one gold layer, the at least one clay and adhesive layer, the at least one chalk and adhesive layer and wherein the projection screen reflects back a lustrous, iridescent image that has motion and depth qualities with transmuted color characteristics.

15. The projection screen of claim **14**, wherein the constructing a multilayered gesso layer includes:

mixing a chalk and adhesive to form a gesso in a predetermined temperature range;

applying multiple layers of the gesso; and

sanding the multiple layers to a desired finish when the multiple layers are dry.

16. The projection screen of claim **15**, wherein the constructing a multilayered bole layer includes:

mixing a clay and adhesive to form a bole;

applying multiple layers of the bole; and

sanding the multiple layers to a desired finish.

17. The projection screen of claim **15**, wherein the gold coated projection receiving surface has at least one of a concave, convex and flat topology.

18. The projection screen of claim **15**, wherein the constructing a gold layer includes:

laying down gold leaves on to a thin layer of water; and

crushing the gold leaves and making it one with layers above, wherein the layers above are at least the multilayered bole layer, and the multilayered gesso layer.

19. A method for making gold projections using a projection screen with a gold coated projection receiving surface for reflecting an incident light corresponding to content, consisting of:

providing a support structure having a predetermined surface topology;

adhering a fiber support to the support structure;

constructing a multilayered gesso layer on to the fiber support;

constructing a multilayered bole layer applied on to the multilayered gesso layer;

constructing a gold layer on to the multilayered bole layer to form the gold coated projection receiving surface,

wherein at least a portion of light that is projected onto the gold coated projection receiving surface passes through ones of at least the at least one gold layer, the at least one clay and adhesive layer, the at least one chalk and adhesive layer and wherein the projection screen reflects back a lustrous, iridescent image that has motion and depth qualities with transmuted color characteristics;

monitoring the image; and

editing the content for color correction.

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